REPORT OF
GROUND-WATER QUALITY



FOR THE

SHERIDAN-ALBION TOWNSHIP LANDFILL SHERIDAN-ALBION TOWNSHIP, CALHOUN COUNTY, MICHIGAN

MARCH 2000

Prepared For:

CITY OF ALBION 112 WEST CASS STREET ALBION, MICHIGAN 49224

DECKER MANUFACTURING CORP. 703 NORTH CLARK STREET ALBION, MICHIGAN 49224

Prepared By:



HULL & ASSOCIATES, INC. 3401 GLENDALE AVENUE SUITE 300 TOLEDO, OHIO 43614



PAGE

TABLE OF CONTENTS

			**	_
1.0	INTRODUCTION			
•		·		
2.0	GROUND-WATER MONITORING	······································		2
		*	, ·	
	2.1 Sampling And Analysis		······	
	2.2 Laboratory Analytical Data	· · · · · · · · · · · · · · · · · · ·		2
-	2.3 Data Review			3
			•	
3.0 L	ANDFILL GAS MONITORING		·	4
· /		• !		
•	3.1 Objective			4
	3.2 Emissions Calculations 3.3 Gaussian Model and Fence Line C 3.4 Risk Calculations	• • • • • • • • • • • • • • • • • • • •		
	3.3 Gaussian Model and Fence Line C	oncentrations	·····	5
	3.4 Risk Calculations	•••••		5
	3.5 Conclusion			6
4.0	LANDFILL INSPECTION		•	7
•••			,	,
5.0	SUMMARY			8

TABLE OF CONTENTS (cont.)

LIST OF TABLES

Table 1	Laboratory Analytical Summary Table for MW02SB
Table 2	Laboratory Analytical Summary Table for MW04SB
Table 3	Laboratory Analytical Summary Table for MW05SB
Table 4	Laboratory Analytical Summary Table for MW06SB.
Table 5	Laboratory Analytical Summary Table for MW08SB
Table 6	Laboratory Analytical Summary Table for MW09SB
Table 7	Laboratory Analytical Summary Table for RW-04
Table 8	Laboratory Analytical Summary Table for RW-06
Table 9	Gasprobe Monitoring Summary Table
Table 10 🕠	Ground-Water Elevation Summary Table
Table 11	Evaluation of Concentration and Risk Calculation Table
Table 12	Vent VOC Concentrations Table

LIST OF FIGURES

Figure 1	Quarterly Sampling Points
Figure 2	Arsenic Isoconcentration Map
Figure 3A	Potentiometric Surface Map for Unconsolidated Saturated Unit
Figure 3B	Potentiometric Surface Map for Shallow Bedrock Unit
Figure 3C	Potentiometric Surface Map for Weathered Bedrock Unit

LIST OF APPENDICES

• •		
Appendix A	Laboratory Analytical and Quality Control Report, Ground-water Monitor Well Fie	eld '
* * * * * * * * * * * * * * * * * * *	Data Sheets, Chain of Custody, and Request for Analysis Forms	
	A-I Laboratory Analytical & Quality Control Report for the October 1999	
	Sampling Event	_
	A-II Ground-Water Monitor Well Field Data Sheets for the October 19	99
* :	Sampling Event	•
	A-III Chain-of-Custody and Request for Analysis Forms for the October 19	99`
	Sampling Event	• •
Appendix B	Laboratory Analytical Data Summary Tables	
	B-I Laboratory Analytical Data Summary Tables for the Monitor Wells Screen	ed
•	in the Shallow Bedrock Unit	
	B-II Laboratory Analytical Data Summary Tables for the Residential Wells	
Appendix C	Field Data Summary Tables	
	C-I Ground-Water Elevation Summary Table	
	C-II Gasprobe Monitoring Summary Table	
•	C-III Evaluation of Concentrations and Risk Calculations Table	
Appendix D	Site Walk Correspondence	
Appendix E	Photo-Documentation	
11	or the contract of the contrac	

1.0 INTRODUCTION

On behalf of Decker Manufacturing Corporation and the City of Albion (Settling O&M Defendants), this report was developed by Hull & Associates, Inc. (HAI) to comply with monitoring and reporting requirements established in the approved Operation and Maintenance Plan (O&M Plan). The information contained in this report represents the initial ground-water sampling event identified as Year #1, Quarter #1. Additionally, this report includes the air emissions model for landfill gas required to completed to be comply with Section 3.3 of the O&M Plan.

Prior to completing this initial ground-water sampling event, a meeting and additional correspondence was conducted between the settling O&M defendants, MDEQ, and U.S. EPA to discuss required revisions to the Quality Assurance Project Plan (QAPP). Changes to the QAPP were required to address the analytical laboratory selected to complete the chemical analysis; as well as a few other minor revisions. So as not to delay the implementation of the monitoring program, it was agreed that the initial sampling event should proceed while revisions to the QAPP were being completed. (The subsequent sampling event completed on January 27, 2000 was completed following the revisions required by the MDEQ and U.S. EPA to the QAPP).

Field activities were completed at the facility in October of 1999 in accordance with the O&M Plan. These activities involved the sampling of six monitor wells screened in the shallow bedrock unit, two residential wells, the monitoring of five methane probes, and the collection of methane gas samples from two methane vents and at the down-wind fence line. Residential well RW07 was not sampled during this event as required as the dedicated water supply pump prohibited access. Therefore, no sample could be collected. Action was taken to correct this problem and a sample was collected in the subsequent sampling event conducted on January 27, 2000.

2.0 GROUND-WATER MONITORING

2.1 Sampling And Analysis

The wells required to be monitored on a quarterly basis consist of three residential wells (RW04, RW06, and RW07) and six shallow bedrock wells (MW02SB, MW04SB through MW06SB, MW08SB, and MW09SB). Figure 1 illustrates the location of the groundwater monitor wells on or near the landfill property.

Ground-water samples were collected by representatives of HAI and analyzed by Test America Inc. A total of eight ground-water samples were collected during the October 1999 sampling event. Samples were collected from six shallow bedrock monitor wells and two residential wells. Additionally, a duplicate sample was also collected from a randomly selected monitor well (MW06SB). One field blank and one trip blank were also collected and analyzed for quality assurance/quality control purposes.

2.2 Laboratory Analytical Data

The laboratory analytical and quality control reports developed by Test America for the October 1999 sampling event, are provided in Attachment A-1. Provided in Attachment A-2 are copies of the ground-water monitor well field data sheets. Copies of the Chain of Custody and Request for Analysis forms are provided in Attachment A-3.

Included in Attachment B-1 are Tables 1-6, which provides a summary of the laboratory analytical data for the inorganic and organic parameters compiled for each of the monitor wells. Included in Attachment B-2 are Tables 7 and 8, which provide a summary of the laboratory analytical results for the residential wells.

The laboratory analytical and CLP-like quality control reports were subcontracted to ECT.CON, Inc. of Imperial, Pennsylvania for third party data validation. The results of the third party validation indicate that the analytical data report for the October 1999 O&M sampling event were valid. After discussions with U.S. EPA and MDEQ, it was decided that the results of the third party validation are not to be included in this report due to the excessive size of the data package. However, these results will be available upon request.

2

Ground-water samples collected from monitor wells screened in the shallow bedrock unit were analyzed for dissolved Arsenic and Ammonia as required in Section 3.2.3 of the O&M Plan. A review of the analytical results indicate that Ammonia was reported as not detect in all of the samples. None of the wells sampled had detectable levels of Arsenic with two exceptions. Dissolved Arsenic was detected in MW04SB at 0.023 mg/L and in MW06SB at 0.164 mg/L. As required in Section 3.2.10 of the O&M Plan, an arsenic isocontration map with spatial distributions in ground-water is illustrated on Figure 3.

Ground-water samples collected from residential wells were analyzed for Antimony, Ammonia, Aluminum, Arsenic, Cobalt, Manganese, Nickel, Benzene, Vinyl Chloride, and 1,2 Dibromo-3-chloropropane as required in Section 3.2.3 of the O&M Plan. A review of the analytical results identified that concentrations for all parameters were reported as not detect in all samples with three exceptions. Ammonia was reported at a concentration of 0.23 mg/L in the sample collected from RW-4, and dissolved Manganese was reported at a concentration of 0.082 mg/L and 0.036 mg/L in RW-4 and RW-6 respectively.

2.3 Data Review

On October 27, 1999, static water elevations were obtained from monitoring wells screened in the unconsolidated saturated unit, shallow bedrock unit, and weathered bedrock unit. Potentiometric surface maps were constructed for each discrete saturated horizon beneath the Site. For each zone ground-water was determined to flow to the west and southwest. Flow becomes more southerly in the southern portion of the Site. Monitor well MW08SG was not utilized in the construction of the potentiometric surface for the unconsolidated unit as it is not in hydraulic conductivity with the other wells. A summary of ground-water elevations are presented on Table 9 in Attachment C-1 and also listed on Figures 4A, 4B, and 4C.

On October 27, 1999, gas probes G-1 through G-5 were monitored for lower explosive limit (LEL) for Methane, Hydrogen Sulfide (H₂S), and oxygen levels. Monitoring was conducted utilizing a *MSA* Gasport and *MSA* 62S GasScope for all field parameters. Results from monitoring are presented on Table 10 in Attachment C-2 and indicate that no explosive gases were detected above instrument detection levels. Illustrated on Figure 1 are the locations of the explosive gas monitoring network (GP-1 through GP-5).

3

3.0 LANDFILL GAS MONITORING

3.1 Objective

Per section 3.3 of the (O&M) Plan, the landfill gas monitoring program is designed to ensure that both air and soil gas meet any Applicable or Relevant and Appropriate Requirements (ARARs) at the fence line. The landfill gas emissions and concentrations of specific VOCs are regulated under Michigan Public Act 348 (NREPA) Part 55.

Per section 3.3.2 of the O&M document, two passive gas vents were installed, as part of the passive venting system, in locations of greatest waste thickness as found on Sheet 7 of the Final Design Drawings prepared by Woodward-Clyde Consultants (WCC). After installation of the vents, emission rates and concentrations of specific VOCs were required to be collected from each vent. Vent VOC concentrations are summarized on Table 12 in Appendix C-3. One fence line sample was also required to be collected downwind of the vents. The calculated emission rates and concentrations for each specific VOC were then used to determine individual and total fence line concentrations by the use of an air dispersion model. The calculated fence line concentrations were then compared to the predicted fence line concentrations to determine if the risk standards were achieved.

The specific VOCs include Benzene, Carbon Tetrachloride, Chloroform, Ethylene Dichloride or 1-2 Dichloroethane, Methylene Chloride, Perchloroethene or Tetrachloroethylene, Trichloroethylene, Vinyl Chloride, and 1-1 Dichloroehtylene.

3.2 Emissions Calculations

The Pre-Design study preformed by WCC utilized the Landfill Air Emissions Estimation Model (USEPA, 1991, Landfill Air Emissions Estimation Model, EPA-600/8-90-085a, April 1991) for closed landfills to predict the emission rates of the specific VOCs. These predicted emission rates are presented in column 1 of Table 11 in Appendix C.

As required by the O&M Plan, Hull & Associates, Inc. (HAI) calculated the actual gas emission rate from the two passive vents. The actual emission rates were then compared to the Pre-Design predictions of the study. The measured flow rates from the vents were calculated by taking two pressure reading in the vents, one at the top of the vent and one at the bottom of the vent. The

difference in the pressure readings was used to calculate a differential pressure. This differential pressure was then used to calculate the flow rate by utilizing Muller's Low-Pressure equation. Vent #1 and Vent #2 flow rates were calculated as 0.02 cubic feet per minute (cfm) and 1.0 cfm, respectively.

Using the most conservative flow rate, the calculated flow from Vent #2 is applied to all 12 vents installed in the landfill. Therefore, the total flow rate of landfill gas being emitted from the landfill is 1.0 cfm per vent, multiplied by 12 vents equals 12 cfm. This total flow rate is then used to calculate the emission rates of the specific VOCs based on the sampling concentrations collected at the vents. The sampling concentrations of the vents are presented on Table 12 in Appendix C. The calculated emission rate for each toxic pollutant is presented on column 3 of Table 11 in Appendix C.

3.3 Gaussian Model and Fence Line Concentrations

After evaluation of the specific VOC emission rates, the fenceline concentration for each chemical is predicted. WCC utilized the Industrial Source Complex Short Term Model (ISCST3) (Version 95250). The results from this model are presented in column 2 of Table 11 in Appendix C.

Using the same theory, HAI chose to utilize a Gaussian air dispersion model to calculate the fence line concentrations of the specific VOCs. The Gaussian model uses the physical parameters of the landfill, available meteorological data, and the calculated emission rates for each VOC to predict fence line concentrations. These concentrations are presented on column 4 of Table 11 in Appendix C.

3.4 Risk Calculations

To determine the risk associated with the specific VOCs, the concentrations of these chemicals are multiplied by the unit risk factor as derived for the MDEQ screening level. The unit risk factors for the specific VOCs are listed in column 6 of Table 11 in Appendix C. The pollutant concentrations should not exceed a total cancer risk of 1x10⁻⁶ at the fenceline, using the risk calculation methods set forth in Risk Assessment Guidance for Superfund Sites. The individual and total 70-year risks associated with the pollutants are found on columns 7 and 8 of Table 11 in Appendix C for the Pre-Design model and the evaluation model respectively.

3.5 Conclusion

The calculated emission rates and concentrations for each specific VOC were used to determine individual and total fence line concentrations. The calculated fence line concentrations were then compared to the WCC predicted fence line concentrations to determine if the risk standards were achieved. As found on Table 11 in Appendix C, the individual and total 70-year risk for the specific VOCs do not exceed the maximum risk of 1x10⁻⁶ at the fenceline. Therefore meeting all regulations under Michigan Public Act 348 (NREPA) Part 55 and ARARs at the fence line.

4.0 LANDFILL INSPECTION

The initial landfill inspection was completed on October 27, 1999 in conjunction with the initial ground-water sampling event at the Site. The inspection was completed by Terry Baehr. The objective of the initial inspection was to establish a baseline of the existing condition of the Site. Weather conditions were sunny, breezy with ambient air temperature in the lower 60's. In addition, areas of long-term maintenance concerns were identified during this initial inspection. These areas of concern were discussed in detail at the Final Certification site walk-over that was completed on November 30, 1999. The areas of concern were documented in a December 1999 correspondence (HAI Document #ALB025.100.0015) that forwarded to the MDEQ and US EPA. A copy of this correspondence is provided in Attachment D.

On December 28, 1999, a supplement site inspection was completed to evaluate site conditions. During the inspection, two significant erosion features were observed in the southwest portion of the landfill in area were the upper drainage swale discharges to the west detection/infiltration basin. Photo-documentation is provided in Attachment E. No corrective actions were taken, as the RA contractor will remobilize to the Site to correct observed problems in the spring of 2000.

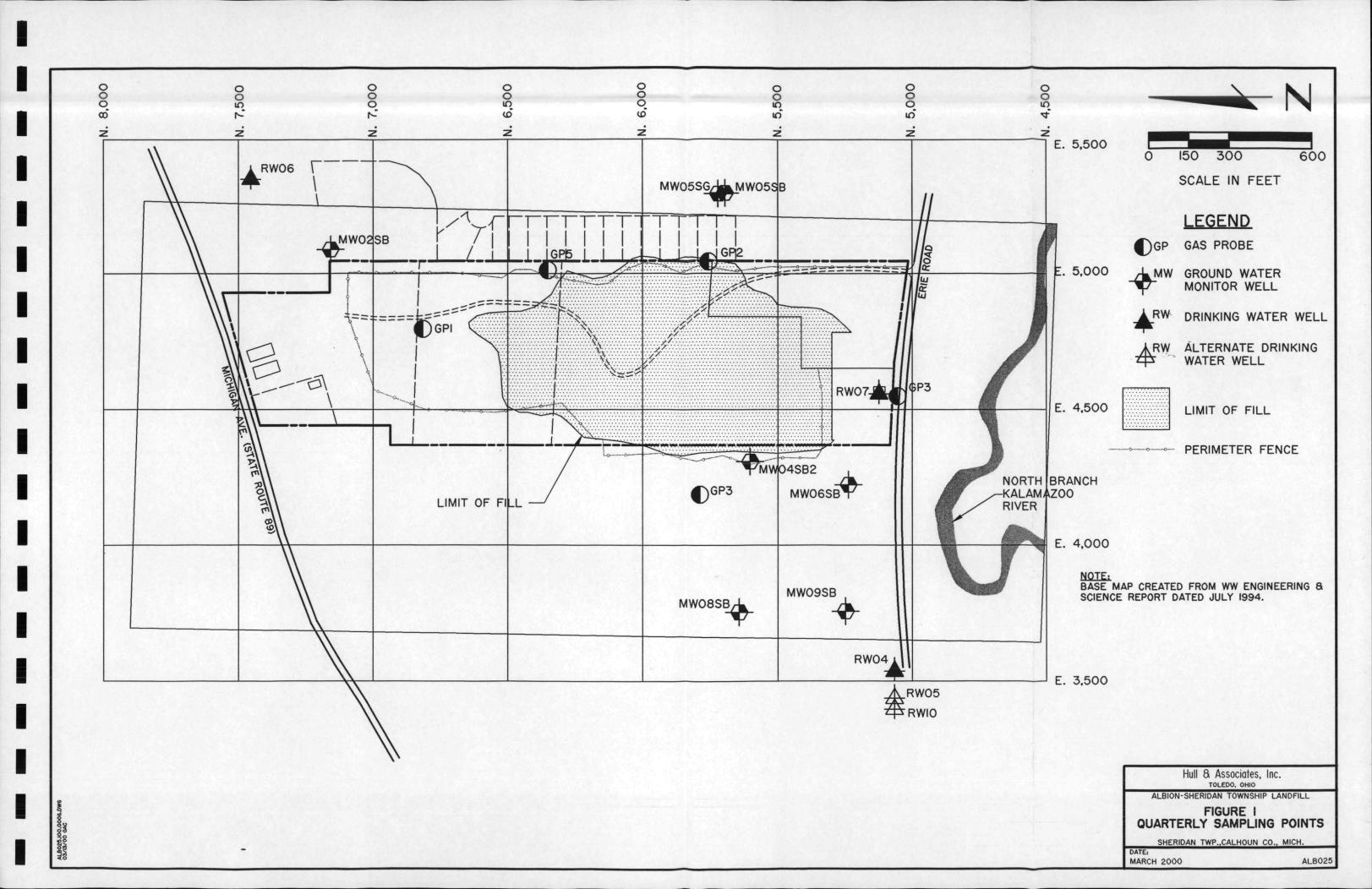
5.0 SUMMARY

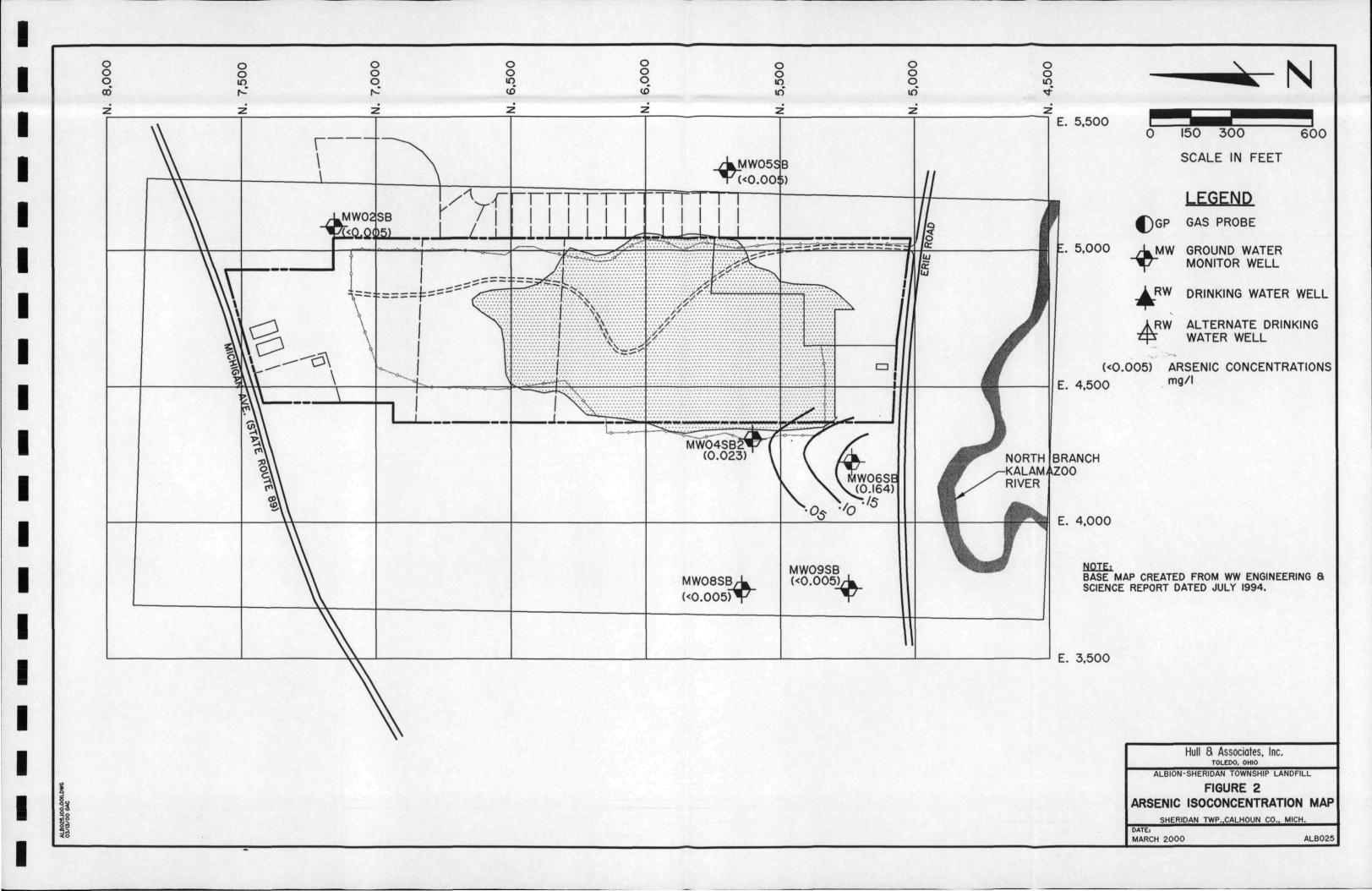
The information in this report of ground-water quality (March 2000) is provided to comply with conditions stated in the approved O&M Plan developed by SECOR International Incorporated (February 1999).

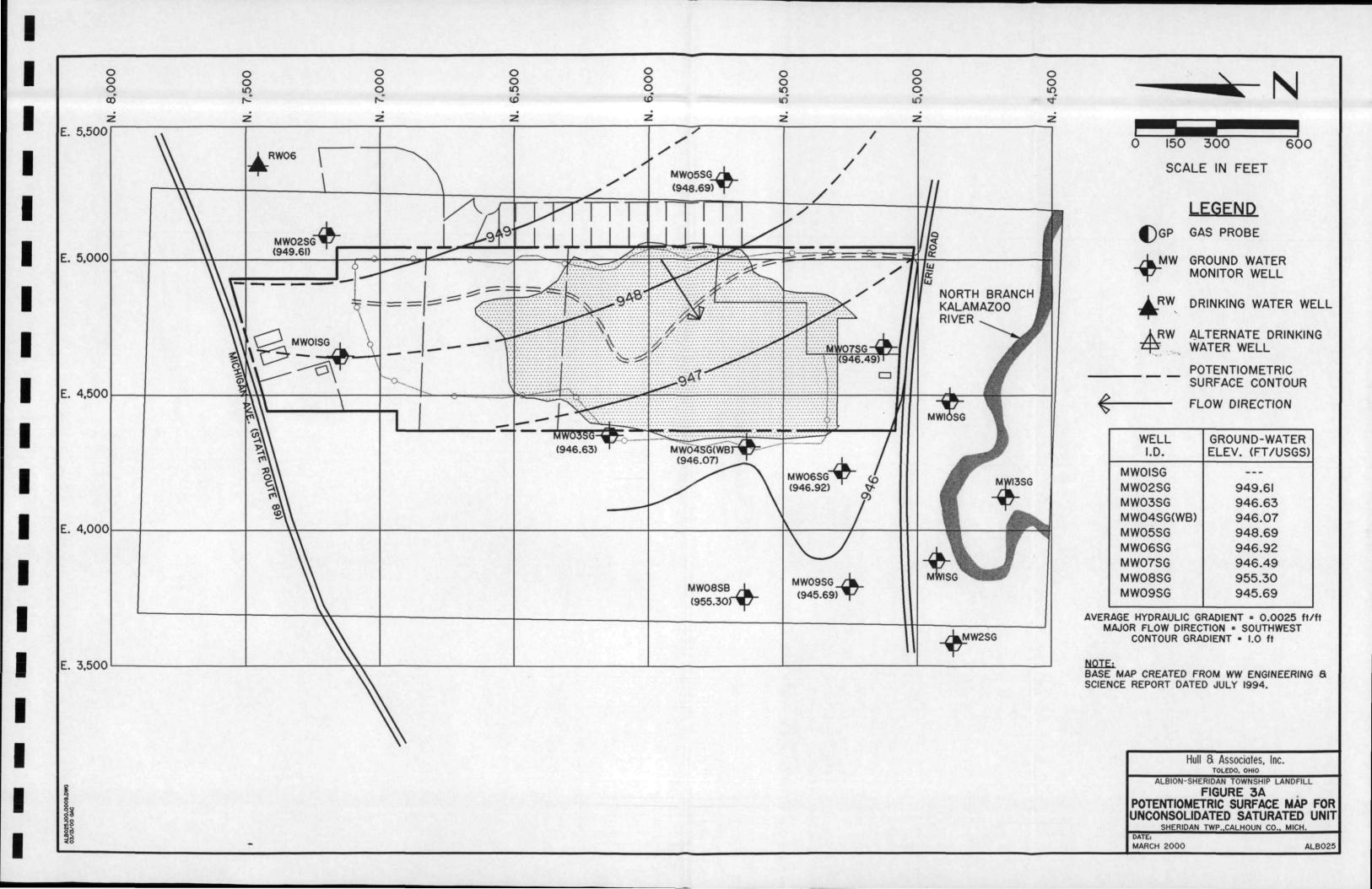
All sampling and analysis activities were completed in accordance with the O&M Plan. The submittal is 75 days from the end of the quarter in which the sampling occurred as stated in section 3.2.10 of the O&M Plan. This report represents Year #1, Quarter #1, and therefore the submittal deadline is March 15, 2000.

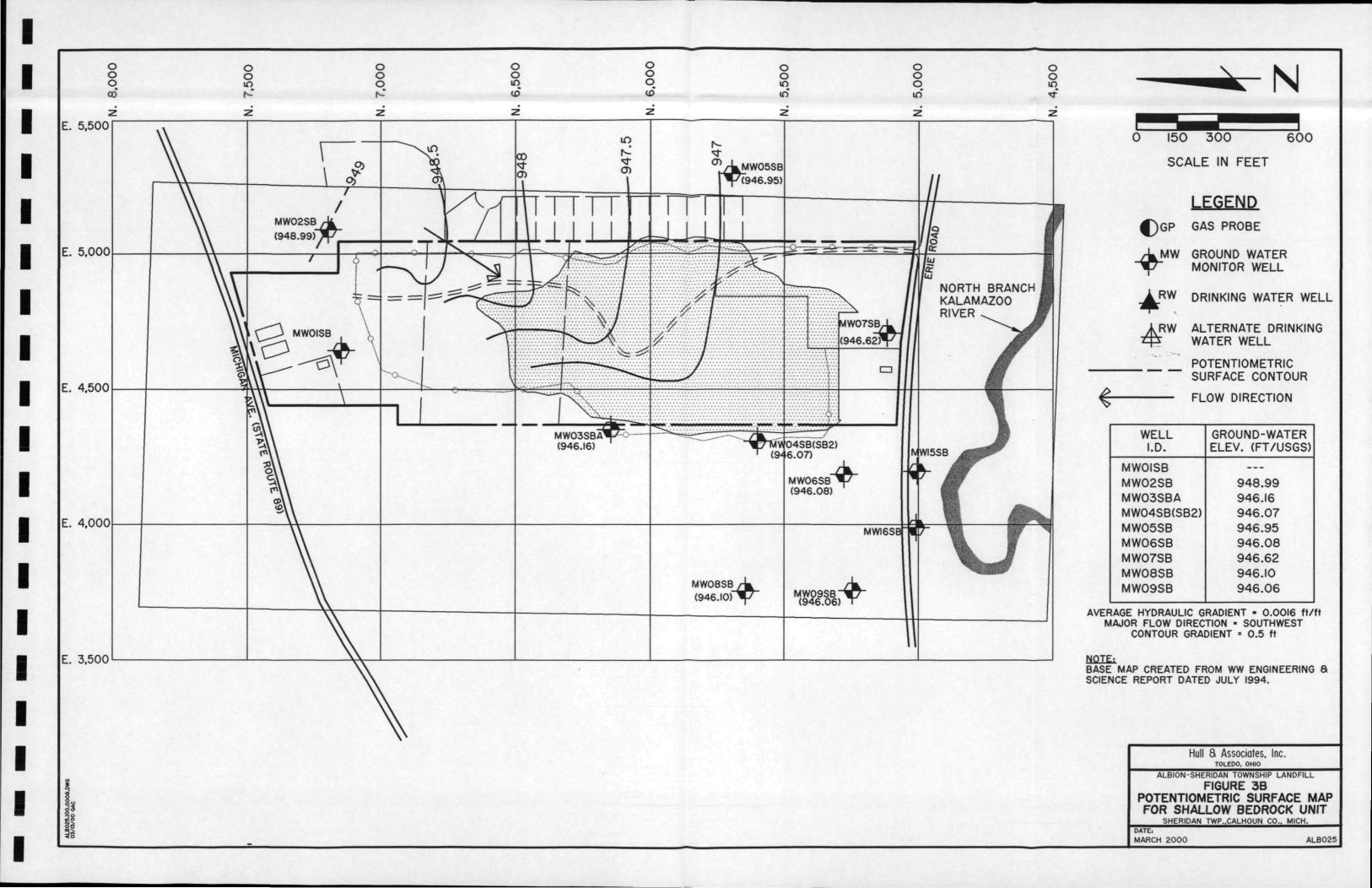
This report also incorporates the findings of required explosive gas monitoring data. As with ground-water discussed above, all sampling and analysis was conducted in accordance with the approved O&M Plan and therefore the submittal deadline is also March 15, 2000.

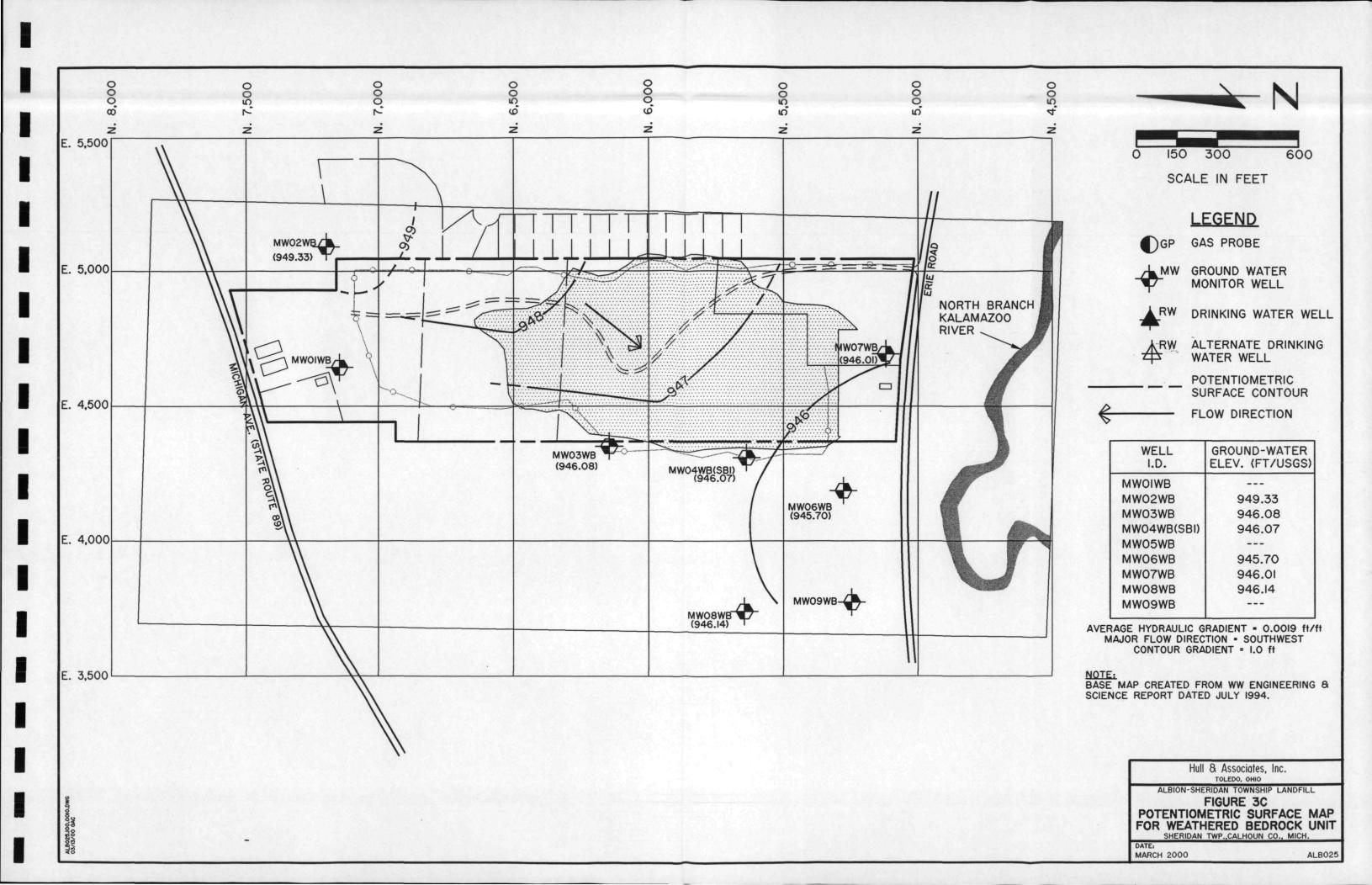
The approach and findings of the landfill gas emissions model are also provided in this report. This emissions study was completed to comply with











ATTACHMENT A

· Laboratory Analytical and Quality Control Report, Ground-water Monitor Well Field Data Sheets, Chain of Custody, and Request for Analysis Forms

ATTACHMENT A-1: Laboratory Analytical and Quality

Control Report for the October 1999 ·

Sampling Event

ATTACHMENT A-2: Ground-water Monitor Well Field

Data Sheets for the October 1999

Sampling Event

ATTACHMENT A-3: Chain of Custody and Request for

Analysis Forms for the October 1999

Sampling Event

ATTACHMENT A-1

Laboratory Analytical and Quality Control Report

HULL & ASSOCIATES, INC.
TOLEDO, OHIO

MARCH 2000 '/ALB025.100.00017.DOC

Case Narrative

Page 1

Job Number: 99.18965 Date Reported: 11/18/1999

Project: ALB025 Phase: 99.MNT

Enclosed with this case narrative are the analytical report, QC summary report and the "CLP Like" data package for all analytical work performed in support of this project.

- a). This report is issued to Hull & Associates on 11/24/1999.
- b). Analyses were conducted on Monitoring wells designated with (MW) descriptions.

Analyses conducted on Ground water monitoring wells were as follows:

Method EPA 350.1 Ammonia Total Dissolved Solids Method EPA 160.1 Dissolved Metals Method 6020 (As)

- c). There were no analytical deviations from intended strategy.
- d). Laboratory batch numbers are found in the analytical data report for each analysis. Prep batch numbers refer to those parameters requiring preliminary preparation procedures and are used to define a set of samples that are prepped together. Run batch numbers refer to analytical analysis runs in which like samples are run together. There are QC samples for both prep batch control as well as run batch control.
- e). For this analytical Job number there were a total of 6 samples.
 - 5 samples were collected from Groundwater Monitoring Wells. I sample was a Field Blank representing all Analytical parameters in the Job.
- f). Please refer to analytical SOPs submitted from the Dayton Division of TestAmerica, Inc. for the appropriate OC procedures and referenced control criteria.

Page 2

Job Number: 99.18965 Date Reported: 11/18/1999

Project: ALB025 Phase: 99.MNT

g). The laboratory report consists of two parts.

The first part of the report is the analytical data which includes (for each sample): sample number, sample description, date and time collected, Analysis conducted, analytical result, any qualifying flags, units of measure, data analyzed, prep batch number, run batch number, base reporting limit, analyst initials performing the analysis and the analytical method reference.

The second part of the report is the Quality Control Summary Report which includes (for each sample, where applicable): Instrument Continuing Calibration Verification checks (CCV), Method/Run blanks (MB), Laboratory Control Standards (LCS), Matrix Spike/Matrix Spike Duplicate (MS/MSD) and Duplicates (DUP). These QC summaries do not represent ALL QC performed in support of analytical data. Please refer to copied raw data in the "CLP Like" data package.

- h). The analytical data submitted with this case narrative was performed for Hull & Associates, Inc. Project ID: ALB025 in Phase 99.MNT.
- i). Samples were received on October 30, 1999 at 09:20 hours from Fed-ex. The Fed-ex airbill number is 813906427035. The temperature of the samples on receipt was 2 degrees C. All samples were received intact with a completed Chain-of-Custody.
- j). All analytical holding times were observed for the analytes on this job.

k). No analytical difficulties of interest were noted.

1). All quality control checks analyzed with the samples associated with this job were in control.



ANALYTICAL AND QUALITY CONTROL REPORT

William G. Petruzzi HULL & ASSOC. (Toledo) 3401 Glendale Ave. Suite 300 Toledo, OH 43614

11/18/1999

Job Number: 99.18965

Enclosed is the Analytical and Quality Control reports for the following samples submitted to the Dayton Division of TestAmerica, Inc. for analysis:

Sample	Sample Description	Date	Date
<u>Number</u>		<u>Taken</u>	Received
569971	ALB025-MW05SB-G102799-340	10/27/1999	10/30/1999
569972	ALB025-MW02SB-G102799-340	10/27/1999	10/30/1999
569973	ALB025-FB1-W102799-340	10/27/1999	10/30/1999
569974	ALB025-MW04SB-G102899-340	10/28/1999	10/30/1999
569975	ALB025-MW08SB-G102899-340	10/28/1999	10/30/1999
569976	ALB025-MW09SB-G102899-340	10/28/1999	10/30/1999

The Quality Control report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

TestAmerica, Inc. certifies that the analytical results contained herein apply only to the specific samples analyzed.

Reproduction of this analytical report is permitted only in its entirety.

Enclosure

3601 SOUTH DIXIETURIVE / DAYTON, OH 45439 / 937-294-6856 / FAX 937-294-7816

Approved By

Test/mensa

PAGE 2 of 11

ANALYTICAL REPORT

William G. Petruzzi HULL & ASSOC. (Toledo) 3401 Glendale Ave. Suite 300 Toledo, OH 43614

11/18/1999

Job Number: 99.18965

Client Project ID: Albion-Sheridan Landfill

	Result Fla	g Units	Date	Prep Batch Number	Run Batch Number	Reporting Limit	Analyst Initials	Method Reference
	MPLE DESCE 8025-MW058		99-340					TE/TIME TAKEN 27/1999 15:50
Nitrogen, Ammonia Direct	0.13	thg/L	11/13/1999		984	<0.05	imp	EPA 350.1
Solids, Total Dissolved	421	mg/L	11/01/1999		988	< 50	mcd	EPA 160.1
Conductivity (On Site)	725	umhos/cm	11/02/1999		143		kbh	
eH '(On Site)	-19	millivts	10/27/1999		3		kbh	
Oxygen, Dissolved (On Site)	0.67	mg/L	10/27/1999		32		kbh	
pH (On Site)	7.45	S.U.	10/27/1999		394		kbh	
Temperature (On Site)	10.7	Degree C	10/27/1999		152		kbh	
ICPMS DISSOLVED METALS	Complete		11/03/1999		380	Complete	ekh	SW 6020
Arsenic, Dissolved, ICPMS	<0.0050	ing/L	11/03/1999		541	<0.0050	ekh	SW 6020
	MPLE DESCE B025-MW028		99-340					TE/TIME TAKEN (27/1999 14:1)
Nitrogen, Ammonia Direct	<0.05	mg/L	11/13/1999		984	<0.05	ımp	EPA 350.1
Solids, Total Dissolved	578	mg/L	11/01/1999		988	<50	bjm	EPA 160.1
Conductivity (On Site)	1063	umhos/cm	11/02/1999		143		kbb	
eH (On Site)	-18	millivts	10/27/1999		3		kbh	
Oxygen, Dissolved (On Site)	0.0	mq/L	10/27/1999		32		kbh	

3601 SOUTH DIXIE DRIVE / DAYTON, OH 45439 / 937-294-6856 / FAX 937-294-7816





PAGE 3 of 11

ANALYTICAL REPORT

William G. Petruzzi HULL & ASSOC. (Toledo) 3401 Glendale Ave. Suite 300 Toledo, OH 43614

11/18/1999

<0.0050

SW 6020

Job Number: 99.18965

Arsenic, Dissolved, ICPMS

Client Project ID: Albion-Sheridan Landfill

<0.0050

	Resu	lt Flag	Units	Date Analyzed	Prep Bacch Number	Run Batch Number	Reporting Limit	Analyst Initials	Method Reference
SAMPLE NO. 569972	SAMPLE ALB025-			99-340					E/TIME TAKEN 27/1999 14:10
pH (On Site)	7.41		s.v.	10/27/1999		394		kbh	
Temperature (On Site)	10.8		Degree C	10/27/1999		152		kbh	
ICPMS DISSOLVED METALS	Сотр	lete		11/03/1999		380	Complete	ekh	SW 6020
Arsenic, Dissolved, ICPM	s <0.0	050	mg/L	11/03/1999		541	<0.0050	ekh	SW 6020
SAMPLE NO. 569973	SAMPLE ALB025-			340					E/TIME TAKEN 27/1999 18:45
Nitrogen, Ammonia Direct	<0.0	5	mg/L	11/13/1999		984	<0.05	imp	EPA 350.1
Solids, Total Dissolved	<50		mg/L	11/01/1999		988	<50	bjm	EPA 160.1
COMS DISSOLVED METALS	Сопф	lete		11/03/1999		380	Complete	ekh	SW 6020

11/03/1999

PAGE 4 of 11

ANALYTICAL REPORT

William G. Petruzzi HULL & ASSOC. (Toledo) 3401 Glendale Ave. Suite 300 Toledo, OH 43614

11/18/1999

Job Number: 99.18965

Client Project ID: Albion-Sheridan Landfill

		Result	Flag	Units	Date Analyzed	Prep Batch Number	Run Batch Number	Reporting Limit	Analyst Initials	Method Refe	rence
		LE DE 025-MW		PTION -G1028	99-340					TE/TIME T. 28/1999	
Nitrogen, Ammonia Direct		29.0		mg/L	11/13/1999		984	<0.05	imp	EPA 350.1	
Solids, Total Dissolved		652		mg/L	11/01/1999		988	<50	bjm	EPA 160.1	
Conductivity (On Site)		1366		umhos/cm	11/02/1999		143		kbh		
eH (On Site)		-5		millivts	10/28/1999		2		kbh		
Oxygen, Dissolved (On Sit	te)	0.87		mg/L	10/28/1999		33		kbh		
pH (On Site)		7.14		S.U.	10/28/1999		395		kbh		
Temperature (On Site)		11.8		Degree C	10/28/1999		153		khh		
ICPMS DISSOLVED METALS		Complete	:		11/03/1999		380	Complete	ekh	SW 6020	
Arsenic, Dissolved, ICPMS	S	0.023		mg/L	11/03/1999		541	<0.005	ekh	SW 6020	
		PLE DE 025-MW		PTION -G1028	99-340					TE/TIME T. '28/1999	
Nitrogen, Ammonia Direct		0.52		mg/L	11/13/1999		984	<0.05	imp	EPA 350.1	
Solids, Total Dissolved		558		mg/L	11/01/1999		988	<50	bjm	EPA 160.1	
Conductivity (On Site)		928		umhos/cm	11/02/1999		143		kbh		
eH (On Site)		-10		millivta	10/28/1999		2		kbh		
Oxygen, Dissolved (On Sit	te}	0.48		mg/L	10/28/1999		33		kbh		



PAGE 5 of 11

ANALYTICAL REPORT

William G. Petruzzi HULL & ASSOC. (Toledo) 3401 Glendale Ave. Suite 300 Toledo, OH 43614

11/18/1999

Job Number: 99.18965

Client Project ID: Albion-Sheridan Landfill

		Result	Flag	Units	Date Analyzed	Prep Batch Number	Run Batch Number	Reporting Limit	Analyst Initials	Method Reference
SAMPLE NO. 569975		LE DE		PTION -G1028	99-340					E/TIME TAKEN 28/1999 15:15
				01010	,, ,,,				20,	
pH (On Site)		7.25		s.u.	10/28/1999		395		kbh	
Temperature (On Site)		11.4		Degree C	10/28/1999		153		kbh	
ICPMS DISSOLVED METALS		Complete	:		11/03/1999		380	Complete	ekh	SW 6020
Arsenic, Dissolved, ICP	I S	<0.0050		mg/L	11/03/1999		541	<0.0050	ekh	SW 6020
SAMPLE NO. 569976		LE DE 25-MW		PTION -G1028:	99-340					E/TIME TAKEN 28/1999 16:20
Nitrogen, Ammonia Direct	:	13.0		mg/L	11/13/1999	,	984	<0.05	ımp	EPA 350.1
Solids, Total Dissolved		656		mg/L	11/01/1999	ľ	988	<50	bjm	EPA 160.1
Conductivity (On Site)		1239		umhos/cm	11/02/1999	1	143		kbh	
eH (On Site)		-6		millivts	10/28/1999	•	2		kbh	
Oxygen, Dissolved (On Si	lte)	0.48		mg/L	10/28/1999)	33		kbh	
pH (On Site)		7.17		s.u.	10/28/1999)	395		kbh	
Temperature (On Site)		11.3		Degree C	10/28/1999	•	153		kbh	
ICPMS DISSOLVED METALS		Complete	ŧ		11/03/1999)	380	Complete	ekh	SW 6020
Arsenic, Dissolved, ICP	4 S	<0.0050		mg/L	11/03/1999	•	541	<0.0050	ekh	SW 6020

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PAGE 6 of 11

QUALITY CONTROL REPORT CONTINUING CALIBRATION VERIFICATION

William G. Petruzzi HULL & ASSOC. (Toledo) 3401 Glendale Ave. Suite 300 Toledo, OH 43614

11/18/1999

Job Number: 99.18965

Analyte	Prep Batch Number	Run Batch Number	CCV True Concentration	CCV Concentration Observed Fl	ag Unite	Percent Recovery
Nitrogen, Ammonia Direct		984	0.50	0.51	mg/L	102
Arsenic, Dissolved, ICPMS		541	0.050	0.050	mg/L	100

CCV - Continuing Calibration Verification

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Test/Imerica

PAGE 7 of 11

QUALITY CONTROL REPORT BLANKS

William G. Petruzzi HULL & ASSOC. (Toledo) 3401 Glendale Ave. Suite 300

11/18/1999

Toledo, OH 43614

Job Number: 99.18965

	Prep	Run			
	Batch	Batch	Blank		Date
Analyte	Number	Number	Analysis Flag	Units	Prepped
Nitrogen, Ammonia Direct		984	<0.05	mg/L	
Solids, Total Dissolved		988	<50	mg/L	
Arsenic, Dissolved, ICPMS		541	<0.0050	mg/L	

Advisory Control Limits for Blanks:

Metals/Met Chemistry/ Conventionals/GC - all compounds should be less than the Reporting Limit.

GC/MS - Semi-Volatiles - all compounds should be less than the Reporting Limit except for phthalates

GC/MS - Semi-Volatiles - all compounds should be less than the Reporting Limit except for phthalates which should be less than 5 times the reporting limit.

Volatiles - Toluene, methylene chloride, acetone and chloroform should be less than 5 times the Reporting Limit. All other volatile compounds should be less than the Reporting Limit.

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PAGE 8 of 11

QUALITY CONTROL REPORT LABORATORY CONTROL STANDARD

William G. Petruzzi HULL & ASSOC. (Toledo) 3401 Glendale Ave. Suite 300 Toledo, OH 43614

11/18/1999

Job Number: 99.18965

	Prep Batch	Run Batch	LCS True	LCS Concentration	LCS		
Analyte	Number	Number	Concentration	Observed	Units	Recovery Flag	
Solids, Total Dissolved		988	330.	312	mq/L	95	

LCS - Laboratory Control Standard

Advisory Control Limits: 'Inorganics statistical limits are established at the mean +/- 3 standard deviations.

If statistical limits are not established the LCS should be 80 - 120 % recovery.

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PAGE 9 of 11

OUALITY CONTROL REPORT MATRIX SPIKE/MATRIX SPIKE DUPLICATE

William G. Petruzzi HULL & ASSOC. (Toledo) 3401 Glendale Ave. Suite 300 Toledo, OH 43614

11/18/1999

Job Number: 99.18965

Analyte	Prep Batch Number		Matrix Spike Result	Sample Result	•	Unit s	ŧ Rec.	MSD Result	MSD Spike Amount	Unita	t Rec.	RPD	Flag
Nitrogen, Ammonia Direct		984	0.53	0.13	0.50	, mg/L	80	0.52	0.50	mq/L	78	1.9	
Arsenic Dissolved ICDMS		541	0.230	c0 0050	0.200	mo /I.	116	0 227	0.200	ma /1.	114	1 7	

NOTE: Matrix Spike Samples may not be samples from this job.

MS - Matrix Spike

MSD - Matrix Spike Duplicate

RPD - Relative Percent Difference

PAGE 10 of 11

QUALITY CONTROL REPORT DUPLICATES

William G. Petruzzi HULL & ASSOC. (Toledo) 3401 Glendale Ave. Suite 300 Toledo, OH 43614

11/18/1999

Job Number: 99.18965

Prep Run Batch Batch

Number

Batch Original Duplicate Number Analysis Analysis Units

RPD Flag

Solids, Total Dissolved

Analyte

605

617 mg/L

2.0

NOTE. Spikes and Duplicates may not be samples from this job.

RPD - Relative Percent Difference

Advisory Control Limits for Duplicates - RPD should be less than 20.

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PAGE 11 of 11

OUALITY CONTROL FLAG DEFINITIONS

Job Number: 99.18965

(*) Indicates an out-of-control QC. The analytical data was reported based on other supporting quality control information.

(Note) Indicates to review the notes and comments section of the analytical report as there is additional information concerning this anlaytical result.

(MS) Indicates that the Matrix Spike (MS) was out of statistical advisory limits.

(MSD) Indicates that the Matrix Spike Duplicate (MSD) was out of statistical advisory limits.

(RPD) Indicates that the Relative Percent Difference (RPD) for the MS/MSD pair was outside of statistical advisory limits.

(SS) Indicates that the MS and MSD were out of statistical advisory limits.

(SSR) Indicates that the MS, MSD and RPD were out of statistical advisory limits.

(MSR) Indicates that the MS and RPD were out of statistical advisory limits.

(MSDR) Indicates that the MSD and RPD were out of statistical advisory limits.

(DL) Indicates that the MS and MSD were diluted out and the percent recoveries of the spikes could not be calculated.

(LS) Indicates that statistical accuracy and precision data is not available for spike concentrations which are < 1/4 of the sample amount. Care should be used in interpreting this data.

(J) Indicates estimated concentration due to internal standard areas or surrogate recoveries outside of control limits. sample matrix effect is usually indicated.

(DW) Indicates Dry Weight.

Analytical Reporting Limits

The reporting limits listed for non-aqueous samples in the analytical report section are Practical Quantitation Limits (PQLs). These PQLs are based upon a typical standard weight used for a non-aqueous sample. The reporting limit for a sample may be different from the PQL listed depending upon the actual weight sample used, the samples moisture content and any dilutions used during the analysis.

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Case Narrative

Page 1

Job Number: 99.18964 Date Reported: 11/18/1999

Project: ALB025 Phase: 99.MNT

Enclosed with this case narrative are the analytical report, QC summary report and the "CLP Like" data package for all analytical work performed in support of this project.

- a). This report is issued to Hull & Associates on 11/24/1999.
- b). Analyses were conducted on both Drinking water well samples (RW04) sampling designations as well as Monitoring wells designated with (MW) descriptions.

Analyses conducted on Drinking water wells were as follows:

Ammonia Method EPA 350.1 Dissolved Metals

Method 6020

(Al, Sb, As, Co, Mn, Ni)

Volatiles Method 8260A

(Benzene, Vinyl chloride)

1.2-Dibromo-3-chloropropane Method 504.1

(DBCP)

Analyses conducted on Ground water monitoring wells were as follows:

Ammonia Method EPA 350.1 Total Dissolved Solids Method EPA 160.1 Dissolved Metals Method 6020 (As)

- c). There were no analytical deviations from intended strategy.
- d). Laboratory batch numbers are found in the analytical data report for each analysis. Prep batch numbers refer to those parameters requiring preliminary preparation procedures and are used to define a set of samples that are prepped together. Run batch numbers refer to analytical analysis runs in which like samples are run together. There are QC samples for both prep batch control as well as run batch control.

Page 2

Job Number: 99.18964 Date Reported: 11/18/1999

Project: ALB025 Phase: 99.MNT

e). For this analytical Job number there were a total of 7 samples.

3 samples were collected from Drinking Water Wells.
(Two of these samples are for the MS and MSD)
2 samples were collected from Groundwater Monitoring Wells.
(One of these samples is a Field Duplicate)
1 sample was a Field Blank representing all Analytical parameters in the Job.
1 sample was a Trip Blank for the Volatile analytes (VOCs, DBCP)

- f). Please refer to analytical SOPs submitted from the Dayton Division of TestAmerica, Inc. for the appropriate QC procedures and referenced control criteria.
- g). The laboratory report consists of two parts.

The first part of the report is the analytical data which includes (for each sample): sample number, sample description, date and time collected, Analysis conducted, analytical result, any qualifying flags, units of measure, data analyzed, prep batch number, run batch number, base reporting limit, analyst initials performing the analysis and the analytical method reference.

The second part of the report is the Quality Control Summary Report which includes (for each sample, where applicable): Instrument Continuing Calibration Verification checks (CCV), Method/Run blanks (MB), Laboratory Control Standards (LCS), Matrix Spike/Matrix Spike Duplicate (MS/MSD) and Duplicates (DUP). These QC summaries do not represent ALL QC performed in support of analytical data. Please refer to copied raw data in the "CLP Like" data package.

- h). The analytical data submitted with this case narrative was performed for Hull & Associates, Inc. Project ID: ALB025 in Phase 99.MNT.
- i). Samples were received on October 30, 1999 at 09:20 hours from Fed-ex. The Fed-ex airbill number is 813906427035. The temperature of the samples on receipt was 3 degrees C. All samples were received intact with a completed Chain-of-Custody.
- j). All analytical holding times were observed for the analytes on this job.

Page 3

Job Number: 99.18964 Date Reported: 11/18/1999

Project: ALB025 Phase: 99.MNT

k). A bottle labeling error and analyst confusion on how to run and report the batch MS/MSD using the sample descriptions logged into the computer system caused the reanalysis of sample numbers 569964, 569965 and 569966 for Ammonia.

l). All quality control checks analyzed with the samples associated with this job were in

control.

Project Manager

Coordinator



Test/America

PAGE 2 of 14

ANALYTICAL AND QUALITY CONTROL REPORT

William G. Petruzzi HULL & ASSOC. (Toledo) 3401 Glendale Ave. Suite 300 Toledo, OH 43614

11/18/1999

Job Number: 99.18964

Enclosed is the Analytical and Quality Control reports for the following samples submitted to the Dayton Division of TestAmerica, Inc. for analysis:

Sample <u>Number</u>	Sample Description	Date <u>Taken</u>	Date <u>Received</u>
569964	ALB025-RW04-G102899-340	10/28/1999	10/30/1999
569965	ALB025-RW04-G102899MS-340	10/28/1999	10/30/1999
569966	ALB025-RW04-G102899MSD-340	10/28/1999	10/30/1999
569967	ALB025-MW06SB-G102899A-340	10/28/1999	10/30/1999
569968	ALB025-MW06SB-G102899B-340	10/28/1999	10/30/1999
569969	ALB025-FB2-W102899-340	10/28/1999	10/30/1999
569970	ALB025-TB1-W102899-340	10/28/1999	10/30/1999

The Quality Control report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

TestAmerica, Inc. certifies that the analytical results contained herein apply only to the specific samples analyzed.

Reproduction of this analytical report is permitted only in its entirety.

Enclosure

Lemita A

ANALYTICAL REPORT

William G. Petruzzi HULL & ASSOC. (Toledo) 3401 Glendale Ave. Suite 300 Toledo, OH 43614

11/18/1999

Job Number: 99.18964

Client Project ID: Albion-Sheridan Landfill

			Date	Prep Batch	Run Batch	Reporting	Analyst	
	Result Fla	ng Units	Analyzed	Number	Number	Limit	Initials	Method Reference
SAMPLE NO. SAME	LE DESC	TOTTOTT C					DATE	E/TIME TAKEN
		-G102899	-340					28/1999 18:45
309904 ADBC	/2J-KN04	-9102033	-240				107	20/1999 10:43
Nitrogen, Ammonia Direct	0.23	mg/L	11/15/1999		986	<0.05	imp	EPA 350.1
Conductivity (On Site)	709	umhos/cm	11/02/1999		143		kbh	
eH (On Site)	-21	millivts	10/28/1999		2		kbh	
Oxygen, Dissolved (On Site)	6.08	mg/L	10/28/1999		33		kbh	
pH (On Site)	7.44	s.u.	10/28/1999		392		clt	
Temperature (On Site)	12.8	Degree C	10/28/1999		153		kbh	
ICPMS DISSOLVED METALS	Complete		11/03/1999		380	Complete	ekh	SW 6020
Aluminum, Dissolved, ICPMS	<0.100	mg/L	11/03/1999	`	578	<0.100	ekh	SW 6020
Antimony, Diss, ICPMS	<0.0050	mg/L	11/03/1999		553	<0.0050	ekh	SW 6020
Arsenic, Dissolved, ICPMS	<0.0050	mg/L	11/03/1999		541	<0.0δ50	ekh	SW 6020
Cobalt, Diss, ICPMS	<0.010	mg/L	11/03/1999		567	<0.010	ekh	SW 6020
Manganese, Dissolved, ICPMS	0.082	tng/L	11/03/1999		599	<0.020	ekh	SW 6020
Nickel, Dissolved, ICPMS	<0.050	mg/L	11/03/1999		571	<0.050	ekh	SW 6020
VOLATILE COMPOUNDS - 8260 (AQ)								
8260 - SW846 (AQ)	Complete		11/05/1999		2140	Complete	jpf	
Benzene	<5.0	ug/L	11/05/1999		2140	<5.0	jpf	SW 8260A
Vinyl Chloride	<1.0	ug/L	11/05/1999		2140	<1.0	jpí	SW 8260A
Surrogate:d4-1,2-DCE	100	. 1	11/05/1999		2140		jpf	SW 8260A
Surrogate:Dibromofluoromethane	104	ŧ	11/05/1999		2140		jpf	SW 8260A
Surrogate:Toluene-d8	93	ŧ	11/05/1999		2140		jpf	SW 8260A
Surrogate.Bromofluorobenzene	97	•	11/05/1999		2140		jpf	SW 8260A
VOLATILES - 504.1								
1,2-Dibromo-3-chloropropane	<1.	ug/L	11/03/1999		288	<1	bmh	EPA 504.1



PAGE 3 of 14

PAGE 4 of 14

ANALYTICAL REPORT

ANALYTICAL REPORT

William G. Petruzzi HULL & ASSOC. (Toledo) 3401 Glendale Ave. Suite 300 Toledo, OH 43614

11/18/1999

Job Number: 99.18964

Client Project ID: Albion-Sheridan Landfill

				Prep	Run			
			Date	Batch	Bacch	Reporting	Analyst	
D = = -1 +	D1	*****	N 1	M	Maria		7-161-1-	Manhad Defeases

	Result	Flag	Units	Analyzed	Number	Number	Limit	Initials	Method Reference
	MPLE DE B025-RW			MS-340					E/TIME TAKEN 28/1999 18:45
Nitrogen, Ammonia Direct	92		*	11/15/1999		986	<0.05	imp	EPA 350.1
Conductivity (On Site)	709		umhos/cm	11/02/1999		143		kbh	
eH (On Site)	-21		millivts	10/28/1999		2		kbh	
Oxygen, Dissolved (On Site)	6.08		mg/L	10/28/1999		33		kbh	
pH (On Sice)	7.44		S.U.	10/28/1999		395		kbh	
Temperature (On Site)	12.8		Degree C	10/28/1999		153		kbh	
ICPMS DISSOLVED METALS	Complete	e		11/03/1999		380	Complete	ekh	SW 6020
Aluminum, Dissolved, ICPMS	96		*	11/03/1999		578	<0.100	ekh	SW 6020
Antimony, Diss, ICPMS	104		*	11/03/1999		553	<0.0050	ekh	SW 6020
Arsenic, Dissolved, ICPMS	115		•	11/03/1999		541	<0.0050	ekh	SW 6020 .
Cobalt, Diss, ICPMS	94		1	11/03/1999		567	<0.010	ekh	SW 6020
Manganese, Dissolved, ICPMS	62		¥	11/03/1999		599	<0.020	ekh	SW 6020
Nickel, Dissolved, ICPMS	94		ŧ	11/03/1999		571	<0.050	ekh	SW 6020
VOLATILE COMPOUNDS - 8260 (AQ)								
8260 - SW846 (AQ)	Complet	•		11/05/1999	,	2140	Complete]pf	
Benzene	98			11/05/1999)	2140	<5.0	jpf	SW 8260A
Vinyl Chloride	105		*	11/05/1999		2140	<1.0)pf	SW 8260A
Surrogate: d4-1, 2-DCE	104		*	11/05/1999	,	2140		jpf	SW 8260A
Surrogate:Dibromofluorometh	ane 103		*	11/05/1999		2140		jpf	SW 8260A
Surrogate:Toluene-d8	97		١.	11/05/1999		2140		jpf	SW 8260A
Surrogate:Bromofluorobenzer	e 99		*	11/05/1999	•	2140		jpf	SW 8260A
VOLATILES - 504.1							-		
1,2-Dibromo-3-chloropropane	96			11/03/1999)	288	<1.0	bmh '	EPA 504.1

William G. Petruzzi HULL & ASSOC. (Toledo) 3401 Glendale Ave. Suite 300 Toledo, OH 43614

11/18/1999

Job Number: 99.18964

VOLATILES - 504.1 1,2-Dibromo-3-chloropropane

Client Project ID: Albion-Sheridan Landfill

				Date	Batch	Batch	Reporting	Analyst	
	Result	Flag	Units	Analyzed	Number	Number	Limit	Initials	Method Reference
SAMPLE NO. SAMP	LE DE	SCRI	PTION						E/TIME TAKEN
569966 ALBO	25-RW	04-G	102899!	MSD-340				10/	28/1999 18:45
Nitrogen, Ammonia Direct	92		•	11/15/1999		986	<0.05	1mp	EPA 350.1
Conductivity (On Site)	709		umhos/cm	11/02/1999		143		kbh	
eH (On Site)	-21		millivts	10/28/1999		2		kbh	
Oxygen, Dissolved (On Site)	6.08		mg/L	10/28/1999		33		kbh	
pH (On Site)	7.44		S.U.	10/28/1999		395		kbh	
Temperature (On Site)	12.8		Degree C	10/28/1999		153		kbh	
ICPMS DISSOLVED METALS	Complete	•		11/03/1999		380	Complete	ekh	SW 6020
Aluminum, Dissolved, ICPMS	94		¥	11/03/1999		578	<0.100	ekh	SW 6020
Antimony, Diss, ICPMS	104		*	11/03/1999		553	<0.0050	ekh	SW 6020
Arsenic, Dissolved, ICPMS	114		*	11/03/1999		541	<0.0050	ekh	SW 6020
Cobalt, Diss, ICPMS	94			11/03/1999		567	<0.010	ekh	SH 6020
Manganese, Dissolved, ICPMS	82		•	11/03/1999		599	<0.020	ekh	SW 6020
Nickel, Dissolved, ICPMS	96		1	11/03/1999		571	<0.050	ekh	SW 6020
VOLATILE COMPOUNDS - 8260 (AQ)									
8260 - SH846 (AQ)	Complete	•		11/05/1999		2140	Complete	jpf	
Benzene	88		•	11/05/1999		2140	<5.0	jрf	SW 8260A
Vinyl Chloride	121		t	11/05/1999		2140	<1.0	jpf	SW 8260A
Surrogate:d4-1,2-DCE	105		*	11/05/1999		2140		jрf	SW 8260A
Surrogate:Dibromofluoromethane	103		¥	11/05/1999		2140		jpf	SW 8260A
Surrogate: Toluene - d8	96		ŧ	11/05/1999		2140)pf	SW 8260A
Surrogate:Bromofluorobenzene	101		ŧ	11/05/1999		2140		ρpf	SW 8260A

11/03/1999

288 <1.0

pwp

EPA 504.1





PAGE 5 of 14

PAGE 6 of 14

ANALYTICAL REPORT

William G. Petruzzi HULL & ASSOC. (Toledo) 3401 Glendale Ave. Suite 300 Toledo, OH 43614

11/18/1999

Job Number: 99.18964

Client Project ID: Albion-Sheridan Landfill

	Result Flag	Units	Date Analyzed	Prep Batch Number	Run Batch Number	Reporting Limit	Analyst Initials	Method Reference
	MPLE DESCR B025-MW06S		99A-340					E/TIME TAKEN 28/1999 18:00
Nitrogen, Ammonia Direct Solids, Total Dissolved Conductivity (On Site)	26.0 605 1258	mg/L mg/L umbos/cm	11/13/1999 11/01/1999 11/02/1999		984 988 143	<0.05 <50	imp bjm kbh	EPA 350.1 EPA 160.1
eH (On Site) Oxygen, Dissolved (On Site) Oil (On Site) Temperature (On Site)	-4 0.95 7.13 11.6	millivts mg/L S.U. Degree C	10/28/1999 10/28/1999 10/28/1999 10/28/1999		2 33 395 153		kbh kbh kbh kbh	
ICPMS DISSOLVED METALS Argenic, Dissolved, ICPMS	Complete 0.164	mg/L	11/03/1999		380 541	Complete	ekh ekh	SW 6020 SW 6020

ANALYTICAL REPORT

William G. Petruzzi HULL & ASSOC. (Toledo) 3401 Glendale Ave. Suite 300 Toledo, OH 43614

11/18/1999

Job Number: 99.18964

Client Project ID: Albion-Sheridan Landfill

	Result Flag	Units	Date Analyzed	Prep Batch Number	Run Batch Number	Reporting Limit	Analyst Initials	Method Reference
	P LE DESCR 025-MW06S		99B-340					E/TIME TAKEN 28/1999 18:00
Nitrogen, Ammonia Direct	24.0	mq/L	11/13/1999		984	<0.05	imp	EPA 350.1
Solids, Total Dissolved	612	mg/L	11/01/1999		988	<50	-	EPA 160,1
Conductivity (On Site)	1258	umhos/cm	11/02/1999		143		kbh	
eH (On Site)	-4	millivts	10/28/1999		2		kbh	
Oxygen, Dissolved (On Site)	0.95	mg/L	10/28/1999		33		kbh	
pH (On Site)	7.13	s.u.	10/28/1999		395		kbh	
Temperature (On Site)	11.6	Degree C	10/28/1999		153		khh	
ICPMS DISSOLVED METALS	Complete		11/03/1999		380	Complete	ekh	SW 6020
Arsenic, Dissolved, ICPMS	0.164	mq/L	11/03/1999		541	<0.005	ekh	SW 6020



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PAGE 7 of 14

EPA 504.1

PAGE 8 of 14

EPA 504.1

ANALYTICAL REPORT

William G. Petruzzi HULL & ASSOC. (Toledo) 3401 Glendale Ave. Suite 300 Toledo, OH 43614

11/18/1999

1,2-Dibromo-3-chloropropane

Job Number: 99.18964

Client Project ID: Albion-Sheridan Landfill

				Date	Prep Batch	Run Batch	Reporting	Analyst	
	Result	Flag	Unite	Analyzed	Number	Number	Limit	Initials	•
	PLE DE 025-FB		PTION 02899-	340					E/TIME TAKEN 28/1999 18:35
Nitrogen, Ammonia Direct	<0.05		mg/L	11/15/1999		986	<0.05	1mb	EPA 350.1
Solids, Total Dissolved	<50		mg/L	11/01/1999		988	<50	bjm	EPA 160.1
ICPMS DISSOLVED METALS	Complete			11/03/1999		380	Complete	ekh	SW 6020
Aluminum, Dissolved, ICPMS	<0.100		mg/L	11/03/1999		578	<0.100	ekh	SW 6020
Antimony, Diss, ICPMS	<0.0050		mg/L	11/03/1999		553	<0.0050	ekh	SW 6020
Arsenic, Dissolved, ICPMS	<0.0050		mg/L	11/03/1999		541	<0.0050	ekh	SW 6020
Cobalt, Diss, ICPMS	<0.010		mg/L	11/03/1999		567	<0.010	ekh	SW 6020
Manganese, Dissolved, ICPMS	<0.020		mg/L	11/03/1999		599	<0.020	ekh	SW 6020
Nickel, Dissolved, ICPMS	<0.050		mg/L	11/03/1999		571	<0.050	ekh	SW 6020
VOLATILE COMPOUNDS - 8260 (AQ)									
8260 - SN846 (AQ)	Complete			11/05/1999		2140	Complete)pf	
Benzene	<5.0		ug/L	11/05/1999		2140	<5.0	jpf	SW 8260A
Vinyl Chloride	<1.0		ug/L	11/05/1999		2140	<1.0	jpf	SW 8260A
Surrogate: 44-1,2-DCE	100		*	11/05/1999	1	2140		jpf	SW 8260A
Surrogate: Dibromofluoromethane	101		¥	11/05/1999	1	2140		jpf	SW 8260A
Surrogate:Toluene-d8	98		4	11/05/1999)	2140		jpf	SW 8260A
Surrogate:Browofluorobenzene	100		t	11/05/1999	1	2140		jpf	SW 8260A
COLATILES - 504.1									

11/03/1999

ANALYTICAL REPORT

William G. Petruzzi HULL & ASSOC. (Toledo) 3401 Glendale Ave. Suite 300 Toledo, OH 43614

11/18/1999

Job Number: 99.18964

VOLATILES - 504.1 1,2-Dibromo-3-chloropropane

Client Project ID: Albion-Sheridan Landfill

	Result	Flag Unite	Date Analyzed	Batch Number	Batch Number	Reporting Limit	Analyst Initials	Method Reference
		SCRIPTIC 1-W10289						E/TIME TAKEN 28/1999
VOLATILE COMPOUNDS - 8260 (A) 1							
8260 - SW846 (AO)	Complete		11/05/1995	,	2140	Complete	jpf	
Benzene	<5.0	ug/L	11/05/1999	9	2140	<5.0	jpf	SW 8260A
Vinyl Chloride	<1.0	ug/L	11/05/1999)	2140	<1.0)pf	SW 8260A
Surrogate:d4-1,2-DCE	101	١.	11/05/1999	,	2140		jpf	SW 8260A
Surrogate:Dibromofluorometha	ne 104	*	11/05/1999	•	2140		jpf	SW 8260A
Surrogate:Toluene-d8	94	•	11/05/1999	,	2140		јрf	SW 8260A
Surrogate:Bromofluorobenzene	94	*	11/05/1999	•	2140	•	jpf	SW 8260A

11/03/1999

Prep Run



Test/America

PAGE 9 of 14

OUALITY CONTROL REPORT CONTINUING CALIBRATION VERIFICATION

William G. Petruzzi HULL & ASSOC. (Toledo) 3401 Glendale Ave. Suite 300 Toledo, OH 43614

11/18/1999

Job Number: 99.18964

	Prep	Run	CCV	CCV			
	Batch	Batch	True	Concentration	on		Percent
Analyte	Number	Number	Concentration	Observed	Flag	Units	Recovery
Nitrogen, Ammonia Direct		984	0.50	0.51		mg/L	102
Nitrogen, Ammonia Direct		986	0.50	0.50		mg/L	100
Aluminum, Dissolved, ICPMS		578	0.050	0.051		mg/L	102
Antimony, Diss, ICPMS		553	0.050	0.052		mg/L	104
Arsenic, Dissolved, ICPMS		541	0.050	0.050		mg/L	100
Cobalt, Diss, ICPMS		567	0.050	0.050		mg/L	100
Manganese, Dissolved, ICPMS		599	0.050	0.047		mg/L	94
Nickel, Dissolved, ICPMS		571	0.050	0.051		mg/L	102
VOLATILE COMPOUNDS - 8260 (AQ)							
Benzene		2140	50	48.2		ug/L	96
Vinyl Chloride		2140	50	49.0		ug/L	98
VOLATILES - 504.1							
1,2-Dibromo-3-chloropropane		288	0.20	0.195		ug/L	98

CCV - Continuing Calibration Verification

360) SOUTH DINIE DRIVE / DAYTON, OH 45439 / 937-294-6856 / FAX: 937-294-7816

PAGE 10 of 14

QUALITY CONTROL REPORT BLANKS

William G. Petruzzi HULL & ASSOC. (Toledo) 3401 Glendale Ave. Suite 300 Toledo, OH 43614

11/18/1999

Job Number: 99.18964

	Prep	Run				
	Batch	Batch	Blank			Date
Analyte	Number	Number	Analysia	Plag	Units	Prepped
Nitrogen, Ammonia Direct		984	<0.05		mg/L	
Nitrogen, Ammonia Direct		986	<0.05		mg/L	
Solids, Total Dissolved		988	<50		mg/L	
Aluminum, Dissolved, ICPMS		578	<0.10		mg/L	
Antimony, Diss, ICPMS		553	<0.0050		mg/L	
Arsenic, Dissolved, ICPMS		541	<0.0050		mg/L	•
Cobalt, Diss, ICPMS		567	<0.010		mg/L	
Manganese, Dissolved, ICPMS		599	<0.020		mg/L	
Nickel, Dissolved, ICPMS		571	<0.050		mg/L	
VOLATILE COMPOUNDS - 8260 (AQ)						
Benzene		2140	<5.0		ug/L	
Vinyl Chloride		2140	<1.0		ug/L	
Surrogate:d4-1,2-DCE		2140 -	101		k .	
Surrogate:Dibromofluoromethane		2140	103		4	
Surrogate:Toluene-d8		2140	99		*	
Surrogate:Bromofluorobenzene		2140	97		ŧ	
VOLATILES - 504.1						
1,2-Dibromo-3-chloropropane		288	<1		ug/L	

Advisory Control Limits for Blanks:

Metals/Wet Chemistry/ Conventionals/GC - all compounds should be less than the Reporting Limit.

GC/MS - Semi-Volatiles - all compounds should be less than the Reporting Limit except for phthalates which should be less than 5 times the reporting limit.

Volatiles - Toluene, methylene chloride, acetone and chloroform should be less than 5 times the Reporting Limit. All other volatile compounds should be less than the Reporting Limit.

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PAGE 11 of 14

QUALITY CONTROL REPORT LABORATORY CONTROL STANDARD

William G. Petruzzi HULL & ASSOC. (Toledo) 3401 Glendale Ave. Suite 300 Toledo, OH 43614

11/18/1999

Job Number: 99.18964

	Prep	Run	LCS	LCS		LCS
	Batch	Batch	True	Concentration	100	1.4
Analyte	Number	Number	Concentration	Observed	Units	Recovery Flag
Solids, Total Dissolved		988	330.	312	mg/L	95
VOLATILE COMPOUNDS - 8260 (AQ)					-	
Benzene		2140	20	20.7	ug/L	104
Vinyl Chloride		2140	20	18.6	ug/L	93
Surrogate:d(-1,2-DCE		2140	50	51.2		102
Surrogate:Dibromofluoromethane		2140	50	50.8	*	102
Surrogate:Toluene-d8		2140	50	49.3	*	99
Surrogate:Bromofluorobenzene		2140	50	48.4	¥	97
VOLATILES - 504.1						
1,2-Dibromo-3-chloropropane		288	0.20	0.19	ug/L	95

LCS - Laboratory Control Standard

Advisory Control Limits: Inorganics statistical limits are established at the mean */- 3 standard deviations.

If statistical limits are not established the LCS should be 80 - 120 % recovery.

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Testimensa

PAGE 12 of 14

QUALITY CONTROL REPORT MATRIX SPIKE/MATRIX SPIKE DUPLICATE

William G. Petruzzi HULL & ASSOC. (Toledo) 3401 Glendale Ave. Suite 300 Toledo, OH 43614

11/18/1999

Job Number: 99.18964

	Prep	Run	Matrix						MSD				
	Batch	Batch	Spike	Sample	Spike		*	MSD	Spike		١.		
Analyte	Number	Number	Result	Result	Amount	Unite	Rec.	Result	Amount	Unite	Rec.	RPD	Fl
Nitrogen, Ammonia Direct		984	0.53	0.13	0.50	mg/L	80	0.52	0.50	mg/L	78	1.9	
Nitrogen, Ammonia Direct		986	0.69	0.23	0.50	mg/L	92	0.69	0.50	mg/L	92	0	
Aluminum, Dissolved, ICPMS		578	0.193	<0.100	0.200	mg/L	96	0.189	0.200	mg/L	94	2.1	
Antimony, Diss, ICPMS		553	0.207	<0.0050	0.200	mg/L	104	0.208	0.200	mg/L	104	0.5	
Arsenic, Dissolved, ICPMS		541	0.230	<0.0050	0.200	mg/L	115	0.227	0.200	mg/L	114	1.3	
Cobalt, Diss, ICPMS		567	0.198	<0.010	0.200	mg/L	94	0.189	0.200	mg/Ն	94	0.5	
Manganese, Dissolved, ICPMS		599	0.247	0.082	0.200	mg/L	82	0.245	0.200	mg/L	82	0.8	
Nickel, Dissolved, ICPMS		571	0.188	<0.050	0,200	mg/L	94	0.191	0.200	mg/L	96	1.6	
VOLATILE COMPOUNDS - 8260 (AQ)													
Benzene		2140	19.7	<5	20	ug/L	98	17.7	20	ug/L	88	11	
Vinyl Chloride		2104	21.1	<1	20	ug/L	106	24.2	20	ug/L	121	13.7	
VOLATILES - 504.1													
1.2-Dibromo-3-chloropropane		288	0.192	<1	0.20	ug/L	96	0 21	0.20	ua/L	105	6.9	

NOTE: Matrix Spike Samples may not be samples from this job.

MS - Matrix Spike

MSD - Matrix Spike Duplicate

RPD - Relative Percent Difference

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PAGE 13 of 14

QUALITY CONTROL REPORT

William G. Petruzzi HULL & ASSOC. (Toledo) 3401 Glendale Ave. Suite 300 Toledo, OH 43614

11/18/1999

Job Number: 99.18964

Analyte	Batch Number		Original Analysis	Duplicate Analysis	Units	RPD	Flag
Solide Total Bissolved		988	605	617	mg/L	2.0	

NOTE: Spikes and Duplicates may not be samples from this job.

RPD - Relative Percent Difference

Advisory Control Limits for Duplicates - RPD should be less than 20.

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PAGE 14 of 14

QUALITY CONTROL FLAG DEFINITIONS

Job Number: 99.18964

- (\star) Indicates an out-of-control QC. The analytical data was reported based on other supporting quality control information.
- (Note) Indicates to review the notes and comments section of the analytical report as there is additional information concerning this anlaytical result.
- (MS) Indicates that the Matrix Spike (MS) was out of statistical advisory limits.
- $\mbox{(MSD)}$ Indicates that the Matrix Spike Duplicate (MSD) was out of statistical advisory limits.
- (RPD) Indicates that the Relative Percent Difference (RPD) for the MS/MSD pair was outside of statistical advisory limits.
- (SS) Indicates that the MS and MSD were out of statistical advisory limits.
- (SSR) Indicates that the MS, MSD and RPD were out of statistical advisory limits.
- (MSR) Indicates that the MS and RPD were out of statistical advisory limits.
- (MSDR) Indicates that the MSD and RPD were out of statistical advisory limits. $\hfill\Box$
- (DL) Indicates that the MS and MSD were diluted out and the percent recoveries of the spikes could not be calculated.
- (LS) Indicates that statistical accuracy and precision data is not available for spike concentrations which are < 1/4 of the sample amount. Care should be used in interpreting this data.
- (J) Indicates estimated concentration due to internal standard areas or surrogate recoveries outside of control limits. A sample matrix effect is usually indicated.
- (DW) Indicates Dry Weight.

Analytical Reporting Limits

The reporting limits listed for non-aqueous samples in the analytical report section are Practical Quantitation Limits (PQLs). These PQLs are based upon a typical standard weight used for a non-aqueous sample. The reporting limit for a sample may be different from the PQL listed depending upon the actual weight of sample used, the samples moisture content and any dilutions used during the analysis.

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Case Narrative

Page 1

Job Number: 99.19165 Date Reported: 11/19/1999

Project: ALB025 Phase: 99.MNT

Enclosed with this case narrative are the analytical report, QC summary report and the "CLP Like" data package for all analytical work performed in support of this project.

a). This report is issued to Hull & Associates on 11/24/1999.

b). Analyses were conducted on Drinking water well samples indicated with (RW04) sampling designations.

Analyses conducted on Drinking water wells were as follows:

Ammonia

Method EPA 350.1

Dissolved Metals

Method 6020

(Al, Sb, As, Co, Mn, Ni)

Volatiles

Method 8260A

(Benzene, Vinyl chloride)

1,2-Dibromo-3-chloropropane

Method 504.1

(DBCP)

- c). There were no analytical deviations from intended strategy.
- d). Laboratory batch numbers are found in the analytical data report for each analysis. Prep batch numbers refer to those parameters requiring preliminary preparation procedures and are used to define a set of samples that are prepped together. Run batch numbers refer to analytical analysis runs in which like samples are run together. There are QC samples for both prep batch control as well as run batch control.
- e). For this analytical Job number there were a total of 7 samples.

I samples were collected from Drinking Water Wells.

1 sample was a Field Blank representing all Analytical parameters in the Job.

1 sample was a Trip Blank for the Volatile analytes (VOCs, DBCP)

Page 2 Job Number: 99.19165 Date Reported: 11/19/1999 Project: ALB025

Phase: 99.MNT

- f). Please refer to analytical SOPs submitted from the Dayton Division of TestAmerica, Inc. for the appropriate OC procedures and referenced control criteria.
- g). The laboratory report consists of two parts.

The first part of the report is the analytical data which includes (for each sample): sample number, sample description, date and time collected, Analysis conducted, analytical result, any qualifying flags, units of measure, data analyzed, prep batch number, run batch number, base reporting limit, analyst initials performing the analysis and the analytical method reference.

The second part of the report is the Quality Control Summary Report which includes (for each sample, where applicable): Instrument Continuing Calibration Verification checks (CCV), Method/Run blanks (MB), Laboratory Control Standards (LCS), Matrix Spike/Matrix Spike Duplicate (MS/MSD) and Duplicates (DUP). These QC summaries do not represent ALL QC performed in support of analytical data. Please refer to copied raw data in the "CLP Like" data package.

- h). The analytical data submitted with this case narrative was performed for Hull & Associates, Inc. Project ID: ALB025 in Phase 99.MNT.
- i). Samples were received on November 3, 1999 at 10:30 hours from Fed-ex. The Fed-ex airbill number is 813906426885. The temperature of the samples on receipt was 3 degrees C. All samples were received intact with a completed Chain-of-Custody.
- i). All analytical holding times were observed for the analytes on this job.
- k). No unpreserved 40 mL VOA vials were received for the DBCP analysis by Method 504.1 for the Trip Blank sample number 570564. Analysis was performed on HCl preserved vials left over from the analysis of 8260A. No analytical difficulties should occur from the use of these preserved vials for this analysis.

l). All quality control checks analyzed with the samples associated with this job were in control.

Project Manager

ager

Coordinator



Test/America

PAGE 2 of 9

ANALYTICAL AND QUALITY CONTROL REPORT

William G. Petruzzi HULL & ASSOC. (Toledo) 3401 Glendale Ave. Suite 300 Toledo, OH 43614

11/19/1999

Job Number: 99.19165

Enclosed is the Analytical and Quality Control reports for the following samples submitted to the Dayton Division of TestAmerica, Inc. for analysis:

Sample <u>Number</u>	Sample Description	Date <u>Taken</u>	Date <u>Received</u>
570562	ALB025-RW06-G11299-384	11/02/1999	11/03/1999
570563	ALB025-FB1-W11299-384	11/02/1999	11/03/1999
570564	ALB025-TB1-W11299-384	11/02/1999	11/03/1999

The Quality Control report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

TestAmerica, Inc. certifies that the analytical results contained herein apply only to the specific samples analyzed.

Reproduction of this analytical report is permitted only in its entirety.

Enclosure

Approved By

ANALYTICAL REPORT

William G. Petruzzi HULL & ASSOC. (Toledo) 3401 Glendale Ave. Suite 300 Toledo, OH 43614

11/19/1999

Job Number: 99.19165

Client Project ID: ALB025 Albion-Sheridan Landfill

				Date	Batch	Batch	Reporting	Analyst		
	Result	Flag	Units	Analyzed	Number	Number	Limit	Initials	Method Reference	
	SAMPLE DE ALB025-RW			384					E/TIME TAKEN 02/1999 12:00	
Nitrogen, Ammonia Direct	<0.05		mq/L	11/13/1999		984	<0.05	imp	EPA 350.1	
Conductivity (On Site)	NA		umhos/cm			146		kbh		
eH (On Site)	-16		millivts	11/02/1999		4		kbh		
Oxygen, Dissolved (On Sit	e) 1.82		mg/L	11/02/1999		35		kbh		
pH (On Site)	7.44		S.U.	11/02/1999		403		kbh		
Temperature (On Site)	12.7		Degree C	11/02/1999		155		kbh		
ICPMS DISSOLVED METALS	Complet	e		11/09/1999		384	Complete	ekh	SW 6020	
Aluminum, Dissolved, ICPM	S <0.100		mg/L	11/09/1999		582	<0.100	ekh	SW 6020	
Antimony, Diss, ICPMS	<0.0050		mg/L	11/09/1999		557	<0.0050	ekh	SW 6020	
Arsenic, Dissolved, ICPMS	<0.0050		mg/L	11/09/1999		545	<0.0050	ekh	SW 6020	
Cobalt, Diss, ICPMS	<0.010		mg/L	11/09/1999		571	<0.010	ekh	SW 6020	
Manganese, Dissolved, ICP	MS 0.036		mg/L	11/09/1999		603	<0.020	ekh	SW 6020	
Nickel, Dissolved, ICPMS	<0.050		mg/L	11/09/1999		575	<0.050	ekh	SW 6020	
VOLATILE COMPOUNDS - 8260	(AQ)									
Benzene	<\$.0		ug/L	11/05/1999		2140	<5.0	jpf	SW 8260A	
Vinyl Chloride	<1.0		ug/L	11/05/1999		2140	<1.0	jpf	SW 8260A	
Surrogate:d4-1,2-DCE	102		4	11/05/1999		2140		jpf	SW 8260A	
Surrogate:Dibromofluorome	thane 104		1	11/05/1999		2140		jpf	SW 8260A	
Surrogate:Toluene-d8	97		ŧ	11/05/1999		2140		jpf	SW 8260A	
Surrogate:Bromofluorobenz	ene · 97		*	11/05/1999		2140		jąt	SW 8260A	
VOLATILES - 504.1										
1,2-Dibromo-3-chloropropa	ne <1		ug/L	11/05/1999		289	<1	bmh	EPA 504.1	



PAGE 3 of 9

ANALYTICAL REPORT

William G. Petruzzi HULL & ASSOC. (Toledo) 3401 Glendale Ave. Suite 300 Toledo, OH 43614

11/19/1999

Job Number: 99.19165

Client Project ID: ALB025 Albion-Sheridan Landfill

Prep Run

Date Batch Batch Reporting Analyst

	Result	Flag	Units	Analyzed	Number	Number	Limit	Initials	Method Reference
	MPLE DE 3025-FB			84					E/TIME TAKEN 02/1999 12:00
Nitrogen, Ammonia Direct	<0.05		mg/L	11/19/1999		987	<0.05	1mp	EPA 350.1
ICPMS DISSOLVED METALS	Complete	•		11/09/1999		384	Complete	ekh	SW 6020
Aluminum, Dissolved, ICPMS	<0.10		mg/L	11/09/1999		562	<0.10	ekh	SW 6020
Antimony, Diss, ICPMS	<0.0050		mg/L	11/09/1999		557	<0.0050	ekh	SW 6020
Arsenic, Dissolved, ICPMS	<0.0050		mg/L	11/09/1999		545	<0.0050	ekh	SW 6020
Cobalt, Diss, ICPMS	<0.010		mg/L	11/09/1999		571	<0.010	ekh	SH 6020
Manganese, Dissolved, ICPMS	<0.020		mg/L	11/09/1999		603	<0.020	ekh	SW 6020
Nickel, Dissolved, ICPMS	<0.050		mg/L	11/09/1999		575	<0.050	ekh	SW 6020
VOLATILE COMPOUNDS - 8260 (AC)								•
8260 - SW846 (AQ)	Complete	•		11/05/1999		2140	Complete	jpf	
Benzene	<5.0		ug/L	11/05/1999		2140	<5.0	jpf	SW 8260A
Vinyl Chloride	<1.0		ug/L	11/05/1999		2140	<1.0	jpf	SW 8260A
Surrogate:d4-1,2-DCE	100		1	11/05/1999		2140		jpf	SW 8260A
Surrogate:Dibromofluoromethan	e 102		¥	11/05/1999		2140		jpf	SW 8260A
Surrogate: Toluene-d8	94		ŧ	11/05/1999		2140		jpf	SW 8260A
Surrogate:Bromofluorobenzene	98		*	11/05/1999		2140		jpf	SW 8260A
VOLATILES - 504.1									
1,2-Dibromo-3-chloropropane	<1		ug/L	11/05/1999	r	289	<1	bmh .	EPA 504.1

PAGE 4 of 9

ANALYTICAL REPORT

William G. Petruzzi HULL & ASSOC. (Toledo) 3401 Glendale Ave. Suite 300

11/19/1999

Suite 300 Toledo, OH 43614

Job Number: 99.19165

Client Project ID: ALB025 Albion-Sheridan Landfill

	Result Fla AMPLE DESCI LB025-TB1-V	RIPTION	Date I Analyzed I		itch Re	oorting		Method Reference 'E/TIME TAKEN '02/1999 12:00
VOLATILE COMPOUNDS - 8260 (AQ)							
8260 - SW846 (AQ)	Complete		11/05/1999	21	40 Cod	plete	jpf	
Benzene	<5.0	ug/L	11/05/1999	21	40 <5	. 0	уpf	SH 8260A
Vinyl Chloride	<1.0	սց/ն	11/05/1999	21	40 <1	. 0	jpf	SW 8260A
Surrogate:d4-1,2-DCE	103	١	11/05/1999	21	40		jpf	SW 8260A
Surrogate:Dibromofluorometh	ane 105	*	11/05/1999	21	40)pf	SW 8260A
Surrogate:Toluene-d8	97		11/05/1999	21	.40		jpf	SW 8260A
Surrogate:Bromofluorobenzen	e 94		11/05/1999	21	40		jpf	SW 8260A
VOLATILES - 504.1								
1 2 Dib 2		/1	11/05/1000	20			bmb	PD8 504 1



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PAGE 5 of 9

OUALITY CONTROL REPORT CONTINUING CALIBRATION VERIFICATION

William G. Petruzzi HULL & ASSOC. (Toledo) 3401 Glendale Ave. Suite 300 Toledo, OH 43614

11/19/1999

Job Number: 99.19165

	Prep	Run	CCV	CCV			
	Batch	Batch	True	Concentration			Percent
Analyte	Number	Number	Concentration	Observed	Flag	Unite	Recovery
Nitrogen, Ammonia Direct		984	0.50	0.51		mg/L	102
Nitrogen, Ammonia Direct		987	0.50	0.48		mg/L	96
Aluminum, Dissolved, ICPMS		582	0.050	0.052		mg/L	104
Antimony, Diss, ICPMS		557	0.050	0.049		mg/L	98
Arsenic, Dissolved, ICPMS		545	0.050	0.049		mg/L	98
Cobalt, Diss, ICPMS		571	0.050	0.050		mg/L	100
Manganese, Dissolved, ICPMS		603	0.050	0.048		mg/L	96
Nickel, Dissolved, ICPMS		\$75	0.050	0.051		mg/L	102
VOLATILE COMPOUNDS - 8260 (AQ)							
Benzene		2140	50	48.2		ug/L	96
Vinyl Chloride		2140	50	49.0		ug/L	98
VOLATILES - 504.1							
1,2-Dibromo-3-chloropropane		289	0.20	0.21		ug/L	105

CCV - Continuing Calibration Verification

3601 SOUTH DIXIE DRIVE / DAYTON, OH 45439 / 937-294-6856 / FAX: 937-294-7816

PAGE 6 of 9

QUALITY CONTROL REPORT

William G. Petruzzi HULL & ASSOC. (Toledo) 3401 Glendale Ave. Suite 300 Toledo, OH 43614

11/19/1999

Job Number: 99.19165

	Prep	Run			
	Batch	Batch	Blank		Date
Analyte	Number	Number	Analysis Flag	Units	Prepped
Nitrogen, Ammonia Direct		984	<0.05	mg/L	
Nitrogen, Ammonia Direct		987	<0.05	mg/L	
Aluminum, Dissolved, ICPMS		582	<0.10	ng/L	
Antimony, Diss, ICPMS		557	<0.0050	mg/L	
'Arsenic, Dissolved, ICPMS		545	<0.0050	mg/L	
Cobalt, Diss, ICPMS		571	<0.010	mg/L	
Manganese, Dissolved, ICPMS		603	<0.020	mg/L	
Nickel, Dissolved, ICPMS		575	<0.050	mg/L	
VOLATILE COMPOUNDS - 8260 (AQ)					
Benzene		2140	<5.0	ug/L	
Vinyl Chloride		2140	<1.0	ug/L	
Surrogate:d4-1,2-DCE		2140	101	1	
Surrogate:Dibromofluoromethane		2140	103	1	
Surrogate:Toluene-d8		2140	99	1	
Surrogate:Bromofluorobenzene		2140	97	· ·	
, VOLATILES - 504.1					
1,2-Dibromo-3-chloropropane		289	<1	ug/L	

Advisory Control Limits for Blanks:

Metals/Met Chemistry/ Conventionals/GC - all compounds should be less than the Reporting Limit.

GC/MS - Semi-Volatiles - all compounds should be less than the Reporting Limit except for phthalates which should be less than 5 times the reporting limit.

Volatiles - Toluene, methylene chloride, acetone and chloroform should be less than 5 times the Reporting

Limit. All other volatile compounds should be less than the Reporting Limit.

3601 SOUTH DIXIE DRIVE / DAYTON, OH 45439 / 937-294-6856 / FAX: 937-294-7816



PAGE 7 of 9

OUALITY CONTROL REPORT LABORATORY CONTROL STANDARD

William G. Petruzzi HULL & ASSOC. (Toledo) 3401 Glendale Ave. Suite 300 Toledo, OH 43614

11/19/1999

Job Number: 99.19165

	Prep Batch	Run Batch	LCS True	LCS Concentration		LCS
Analyte	Number	Number	Concentration	Observed	Units	Recovery Flag
VOLATILE COMPOUNDS - 8260 (AQ)						1
Benzene		2140	20	20.7	ug/L	104
Vinyl Chloride		2140	20 .	18.6	ug/L	93
Surrogate:d4-1,2-DCE		2140	50	51.2	ł.	102
Surrogate:Dibromofluoromethane		2140	50	50.8	t	102
Surrogate:Toluene-d8		2140	50	49.3		99
Surrogate: Bromofluorobenzene		2140	50	48.4	ŧ	97
VOLATILES - 504.1						
1,2-Dibromo-3-chloropropane		289	0.20	0.18	ug/L	90

LCS - Laboratory Control Standard

Advisory Control Limits: Inorganics statistical limits are established at the mean -/- 3 standard deviations.

If statistical limits are not established the LCS should be 80 - 120 % recovery.

3601 SOUTH DIXIE DRIVE / DAYTON, OH 45439 / 937-294-6856 / FAX: 937-294-7816

Test/smersa

PAGE 8 of 9

OUALITY CONTROL REPORT MATRIX SPIKE/MATRIX SPIKE DUPLICATE

William G. Petruzzi HULL & ASSOC. (Toledo) 3401 Glendale Ave. Suite 300 Toledo, OH 43614

11/19/1999

Job Number: 99.19165

Analyte	Prep Batch Number	Run Batch Number	Matrix Spike Result	Sample Result	Spike Amount	Units	Rec.	MSD Result	MSD Spike Amount	Units	l Rec.	RPD H	F1.
,				,									
Nitrogen, Ammonia Direct		984	0.53	0.13	0.50	mg/L	8.0	0.52	0.50	mg/L	78	1.9	
Nitrogen, Ammonia Direct		987	0.50	0.03	0.50	mg/L	94	0.51	0.50	mg/L	96	2.0	
Aluminum, Dissolved, ICPMS		582	0.176	<0.100	0.200	mg/L	88	0.197	0.200	mg/L	98	11	
Antimony, Diss, ICPMS		557	0.185	<0.0050	0.200	mg/L	92 -	0.205	0 200	mg/L	102	10	
Arsenic, Dissolved, ICPMS		545	0.213	<0.0050	0.200	mg/L	107	0.231	0.200	mg/L	116	8.1	
Cobalt, Diss, ICPMS		571	0.173	<0.010	0.200	mg/L	87	0.189	0.200	mg/L	95	8 8	
Manganese, Dissolved, ICPMS		603	0.212	0.036	0.200	mg/L	88	0.229	0.200	mg/L	96	7 7	
Nickel, Dissolved, ICPMS		575	0.174	<0.050	0.200	mg/L	87	0.190	0.200	mg/L	95	8 . B	
VOLATILE COMPOUNDS - 8260 (AQ)													
Benzene		2140	19.7	<5	20	ug/L	98	17.7	20	ug/L	88	11	
Vinyl Chloride		2140	21.1	<1	20	ug/L	105	24.2	20	ug/L	121	13 7	
VOLATILES - 504.1													
1,2-Dibromo-3-chloropropane		289	0.22	<1	0.20	ug/L	110	0.21	0.20	ug/L	105	4.7	

NOTE: Matrix Spike Samples may not be samples from this job.

MS - Matrix Spike

MSD - Matrix Spike Duplicate

RPD = Relative Percent Difference

3601 SOUTH DIXIE DRIVE / DAYTON, OH 45439 / 937-294-6856 / Fax: 937-294-7816



PAGE 9 of 9

QUALITY CONTROL FLAG DEFINITIONS

Job Number: 99.19165

(*) Indicates an out-of-control QC. The analytical data was reported based on other supporting quality control information.

(Note) Indicates to review the notes and comments section of the analytical report as there is additional information concerning this anlaytical result.

(MS) Indicates that the Matrix Spike (MS) was out of statistical advisory limits.

(MSD) Indicates that the Matrix Spike Duplicate (MSD) was out of statistical advisory limits.

(RPD) Indicates that the Relative Percent Difference (RPD) for the MS/MSD pair was outside of statistical advisory limits.

(SS) Indicates that the MS and MSD were out of statistical advisory limits.

(SSR) Indicates that the MS, MSD and RPD were out of statistical advisory limits.

(MSR) Indicates that the MS and RPD were out of statistical advisory limits.

(MSDR) Indicates that the MSD and RPD were out of statistical advisory limits.

(DL) Indicates that the MS and MSD were diluted out and the percent recoveries of the spikes could not be calculated.

(LS) Indicates that statistical accuracy and precision data is not available for spike concentrations which are < 1/4 of the sample amount. Care should be used in interpreting this data.

(J) Indicates estimated concentration due to internal standard areas or surrogate recoveries outside of control limits. A sample matrix effect is usually indicated.

(DW) Indicates Dry Weight.

Analytical Reporting Limits

The reporting limits listed for non-aqueous samples in the analytical report section are Practical Quantitation Limits (PQLs). These PQLs are based upon a typical standard weight used for a non-aqueous sample. The reporting limit for a sample may be different from the PQL listed depending upon the actual weight of sample used, the samples moisture content and any dilutions used during the analysis.

3601 SOUTH DIXIE DRIVE / DAYTON, OH 45439 / 937-294-6856 / FAX: 937-294-7816

ATTACHMENT A-2

Ground-water Monitor Well Field Data Sheets

A A HAR B Associates, Inc.
3401 Glendole Ave.
Suite 300
Toleda, Ohio 43614
Telephone (4(9) 365-20(6)

GROUND-WATER MONITOR WELL DATA SHEET

Monitor Well ID: MW825B

	lame: All	nion-4	له : - و ما			TY INFORMATION Market II. Project No.: ALBOZS
		1975	/		Road	
	Contact: Ler		hmid			Telephone: (517) 629-5535
					MONIT	OR WELL DATA
c	coordinates:	<i>\</i>	1,15	0		N Condition of Well: Good shape, Eut lock, End O
			5/10			Elock Teplaced noweep hale, angular space not f
	asing Material			2"		Screened Formation: 500 1 au Section
	round Surface	Elevation	:	<u>~</u> _		Top of Casing Elevation: 477, 63
	otal Depth: _ From Ground S	Surface)				Total Depth: 69.66 (From Top of Casing)
S	screened Interv	al:	· · ·			Screened Interval: 9/2.67 987.63
					WEATH	IER CONDITIONS
	Vealher:	Surry	~7-			Temperature: 52°F
	Barometric Pre	ssure:		==		Wind Direction: Lalm
P	Personnel Pres	ent:A_	. Ren			SURED PARAMETERS
Ņ	leasured Total	Depth:_	68	أحاجا. 5		_ Static Water Level:Z8.63'
	From Top of (Volume of Stat	•	(e	,594	1 .	(From Top of Casing) Ground-Water Elevation: 948.99
						Gradie Hale Elevation.
D	ate of Purgine	1:	127/	19	PU	RGING DATA Time of Purging:
	urging Method		5p. b.	x.ler		Volume Purged: 27 golfms
	urging Rate; _		2616			
		Well V	olumes	Purged		Volume-to-Purge Calculation Table
	initi		2	3	4	Well Casing Gallons Per Feet of 3 Well Gallons Dia. (in.) Ft. of Depth Water Volumes to Purge
ph -				1417	 	2 0.163 × 40.05 × 3 15 5
_	emp. //,	3 109	10.7	10.7	 	4 0.653 X X 3
<u> </u>	orr. Cond. 90	1 1050	1 108	3 1083		6 I.469 X X 3 •
_	dox. Pol		100	-Am		· ·
با	.0	- -		0.67	MAL]
Ţυ	rbidily 0		1	10		<u>]</u>
			10/27	144	SAM	APLING DATA
	ate of Sampli ampling Metho					Time of Sampling: [4]10
5						Static Water Level: 25.11 (At Time of Sampling)
	Fino	I/Additio				
	oK .	7.45	2	3	4	Notes
	Temp.					Oricin 1230 pH/tomp/ Cond/DO/Eh
	Spec. Cond.	107				pricai bratienaisa 7=2mv, 1001=-171
	Carr. Cand.	1083				1 - class = 55.7 my 1. H cond Sty 1413 "141
	Redox, Pot.	-19				Percent Gos: 0 cut at 1305
ě	0.0.					Percent LEL: D O.CH DO COL. CIMI.
	Turbidity	0 67				
કે		U .				



GROUND-WATER MONITOR WELL DATA SHEET

Monitor Well ID: ベルザ5B

	Fee (4(9)	365-546	37								
A/a	FACILITY INFORMATION Name: Albion-Sheridan TWP. Landfill Project No.: ALBOZS										
1	idress:		175	East	Erie	Pose	d. Albion, Michigan 49224				
		Lero		hmio			Telephone: (617) 629-5535				
	MONITOR WELL DATA										
Co	ordinales	:	^			N	720				
				<u>4,30</u>	C	€	J/43W7/a				
Ca	ising Mat	erial/D	iameter:.	PUC	2		0 + 0				
Gro	ound Surt	ace E	levation:_				Top of Cusing Elevation:				
To (Fr	otal Depth rom Grou	nd Sur	face)				(From Top of Casing)				
Sc	creened In	nterval:			<u>-</u>		Screened Interval: 905-03 - 910.03 (Screen Only)				
i (in	icluding S	and P	ack)			VEATHE	R CONDITIONS				
(w	eather: _		2~~				Temperature:				
1	arometric	Press	ıre:				Wind Direction:S W				
		-	N 0		FIELD	MEAS	URED PARAMETERS				
Pe	ersonnel (Present	: <u>17.7</u>	sever.	25	74.98	1/ 507 - 4,6/				
Me	easured 1 rom Top	Total C	epth:	for-5-	217	79.13	Static Water Level: 10-865 (From Top of Casing)				
1	olume of		-	7.	0,54		Ground-Water Elevation: 914.07				
						PUR	IGING DATA				
	ate of Pu			2819			Time of Purging: 1100				
Pu	urging Me	thod:	_d:3	D. 5a	ler		Volume Purged: 30 Sa 1				
ì	urging Ra		Var	iable	<u>:</u>		<u> </u>				
			Well Vol	umes P	urged		Volume-10-Purge Calculation Table				
J		initiat		2	3_	4	Well Casing Gallons Per Steel of 3 Well Gallons Dia. (in.) Fl. of Depth Water Volumes to Purges				
PΗ		1104	11-12		7.22	7.14	2 0.163 X 27.45 X 3 :228 3				
	emp. Sec. Cond.	13.2	17.2	12.0	11.9_	11.8	4 0.653 X H3.0Z X 3 210				
1 -	or. Cond.	1684	11410	1389	1364	1366	6 I.469 X X 3				
ļ	dox. Pot.	(02)	1130	1.781	17001.	1200					
0.0	0.		1	1							
To	rbidity	0	0	0	0	0					
			10	7.8/99		SAM	PLING DATA Time of Sampling: 1215				
0	ote of S Sampling 1	ompline Mathod	19: ــــــــــــــــــــــــــــــــــــ	30.60	lec		77 5'1				
,	Southind 1		Addition			,,	Static Water Level:				
	-	1 11017	Addition	2	3	4					
1	pH		7.14	, 			Notes Cond Slope= 1.455/				
1	Тепр.		11.8				pH calibration 7.00 = 1 mv 10.01=171 mv				
	Spec.		1,11.0				slope = -55.3 mu/pH D. O slope = 0.98				
Ì	Corr, G		1366				4th wv for measurement stability				
	Redox.		-5m1				Percent Gas: 0				
824	0.0.	-	787mg				Percent LEL: O				
14.0	Turbidi	ly	0				MS/MSD				
128		لللث		ــــــــــــــــــــــــــــــــــــــ		ــــــــــــــــــــــــــــــــــــــ	/ * / · · · · · · · · · · · · · · · · ·				

Telephone (4/3) 365-2048 Fee (4/3) 385-5467	DATA STILET									
Name: Albion-She	riday TW	ACILITY P La	INFORMATION A Fill Project No.:	ALBOZ5						
	ast Eric			an 49224						
7.00.000	midt		-7	29-5535						
Confiders 500 7 75		10115	T C. Copinion C.							
Coordinates N 5 700	-	01110N	R WELL DATA Condition of Well: Cut local	K. replaced w/#3476						
Coordinates: N 1/00		``		sand in annulus						
Casing Material/Diameter:	PUC 3"			he llew produck						
Ground Surface Elevation:			Top of Casing Elevation: -	970.01						
Total Depth:			•	77.93						
(From Ground Surface)			Total Depth: (From Top of Casing)	264 44 216 71						
Screened Interval: (Including Sand Pack)			Screened Interval:	994.51 - 899.51						
	٧	VEATHE	R CONDITIONS	0- '						
Weather: Sun			. Temperature: 50)- <i>F</i>						
Barometric Pressure:			Wind Direction:	<u> </u>						
	FIELD	MEAS	URED PARAMETERS	3.75						
Personnel Present: D. B.	necke,	D. Da	u,S	· / /						
Measured Total Depth:	77.93		Static Water Level:	23.06'						
(From Top of Casing)	8.999	ſ	(From Top of Casing)	944. 55						
Volume of Static Water:	8.194	`	Ground-Water Elevation:	140.73						
0-110 : (0	(27/99	PUR	GING DATA Time of Purging: 15	03						
Date of Farging:	. ba. 185	-	70	a 1						
, , , , , , , , , , , , , , , , , , , ,			Volume Purged:	<u> </u>						
Purging Rate: Varia			. Volume to - Purc	ge Calculation Table						
- 	nes Purged	-	Well Casing Gallons Per	Feel of 3 Well Gallons Standing Valumes to Puge						
 	2 3	4	Dia. (in.) Ft. of Depth	Water Volumes to Purge						
 	110 10.8		2 0.163 X	54.87 × 3 -26.7						
Spec. Cond.	- 1/0		4 0.653 x	x 3						
Corr. Cond. 731 7/9 7	122 725		6 1.469 X	x 3						
Redax. Pal.				- .						
0.0.										
Turbidily O	00									
101	127/99	SAM	PLING DATA	5 5 0						
Dore or Sampling:			Time of Sampling:	23,87						
Sampling Method:	30.60.10		_ Static Water Level: (At Time of Sampling)							
Final/Additional	Well Volume	s								
	2 3	4		Malaa						
pH 7.41			ļ	Notes						
Temp. 10.8			<u> </u>							
Spec. Cond.										
Corr. Cond. 725										
Redax. Pot18 MU			Percent Gas:							
8 0.0. Dayl			Percent LEL:							
15: 1- 3 1-										

77	Tolestane (419 For (419) 385-			DATA SHEET								
Ma	me: ALBO:	Iou -	SHEZI	LAN C	FACILIT	YINF	ORMATIO	N Project No.:	A1.5	3175		
		975	East	Erie	Poad			Michiga		224		
	nlock: Ler	مي حد	.hmid-			_ 10	elephone:	(517)	629-5	535		
					MONITO	OR WE	LL DATA	1				_
Co	ordinates:	<u> </u>	,250					Vell: <u>نصرد ۲</u>				
C -		, F	4, 000 PU	2"		_		annulus nation: 5			K W/A ZAK	ļ
	sing Malerial. xund Surtace							Elevation:	G/.	i. 77		
	tal Depth:	Cicronor					dal Depth: rom Top of	-		હ્ય [']		-
	om Ground S			_			rom Top of creened late		194.77 -	899 .4	7	-
	reened Intervi cluding Sand					(S	creen Only)					
141	other:	5		,	WEATH		NDITIONS		°F]
	rometric Pres	sure:					nd Direction		5W			
				FIFL	MEAS		PARAME					┪
Pc	rsonnel Prese	nt: <u>D</u>		Ke, P	· Davi							
	asured Total om Top of C		78	64		- S16	otic Water I	Level:	Z3.6°			
	lume of Stati	-	9.	Oga			ound-Water	-	946.	<u>08'</u>		
			1- = 1	i a	PUR	GING			1700			******
	te of Purging	1.	128/9				ne of Purgi	-	8.55	a l		
	rging Method:		p. 60.	ie!		- Vol	ume Purgeo	1:	0.35			
L Pu	rging Rate: _		olumes	Purned		-	Vol	ume-10-Pur	ae Calcul	lation Tab	le l	İ
	inite		2	3	4		Well Casing	Gallans Per F1. of Depth	Feet of Standing	3 Well Volumes	Gallons to Purge	ł
ρН	7.7	<u> </u>		7.13	7.13	;	2	-	Water x 5-4.75	× 3	· Z 7	- 1
Soe	φ. 13.5 c. Cond.	8 11.7	11.7	11N-/6	11.6		4	0.653	×	× 3		
	r. Cond. 1250	1260	1264	248	1258		6	1,469	×	x 3		١
	ox. Pol.			TA								
0.0	oidity O	10	10	10	0							
	<u> </u>		1		1 -	PLING	DATA				· · · · · · · · · · · · · · · · · · ·	╡
Do	ite of Sampli	ng:	10/26	199			ne of Samp		800			Ī
Sa	mpling Metho	10: <u>d</u>	isp. ba	.le<		_ \$1-	alic Waler I t Time of :	Level: Sampling)	25.0	· ·		
	Fina	I/Additio			,							
	pH	7.13	2	3	4				Notes			
	Temp.	11.6			$\vdash \vdash \vdash$							
	Spec. Cond.						<u> </u>					ļ
	Corr. Cond.	1258						0				
į	Redox, Pol.	-400					Percent G					ļ
•	0.0.	095~	JL _				L					
	Turbidity	Ø	l		1 I		Field D.	Plicate				- 1

A A HUI B Associates, INC.
3401 Glondale Arc.
■ Suine 300
Teleda, Ohio 43614
Telephone (401) 365-2016

GROUND-WATER MONITOR WELL DATA SHEET

Monitor Well ID: MW85B

Fee (4(3) 365-5467										
	INFORMATION A A 1 Project No.: ALBO 25									
Address: 29975 East Eric Road,	Albion, Michigan 49224									
Contact: Leroy Schnidt	Telephone: (517) 629-5535									
MONITOR WELL DATA										
Coordinates: 2 5,658 N	Condition of Well: Concrete paderacked no weep hele									
E 3,750 E	pater in annulus (no sand) cut/replaced like Screened Formation: Shallow Bedrock Wis 1416									
cosing majoriory biometers	Top of Casing Elevation: 981,43									
Ground Surface Elevation:	-7< 21/									
(From Ground Surface)	Total Depth: 77.39 (From Top of Casing) Screened Interval: 909.83 - 914.83									
Screened Interval: (Including Sand Pack)	Screened Interval: 907.83 714.83 (Screen Only)									
Weather: Sun	R CONDITIONS Temperature: 68°F									
Barometric Pressure:	Wind Direction: W									
·	RED PARAMETERS									
Personnel Present: 1. Benecke, P. Da	<u>~:></u>									
Measured Total Depth: 75.34' (From Top of Casing)	Static Water Level: 35.73 (From Top of Casing)									
Volume of Static Water: 6.554	Ground-Water Elevation: 944,10									
/ - / CC PURG	ING DATA									
Date of Purging: (0/28/55	Time of Purging:									
Purging Method: disp-ba. let	Volume Purged:									
Forging Role:	Volume-to-Purge Calculation Table									
Well Volumes Purged	Well Casing Gallons Per Feel of 3 Well Gallons									
ph 9.49 7.36 7.25 7.25	Did. titi.7 12 of Depth Water Volumes to Volge									
Temp. 1249 2 11.7 11 6 1141 11.4	2 0.63 × 37.61 × 3 · 14.5									
Spec. Cond.	6 L469 X X 3									
Corr. Cond. 733 923 984 938 928										
0.0.										
Turbidity O O O O .	· · · · · · · · · · · · · · · · · · ·									
Pate of Sampling: 10/28/99 SAMP	LING DATA 15:15									
	time of Sompting:									
Sompling Method: di3p.6a.les	Static Water Level: 56.971 (At Time of Sampling)									
Final/Additional Well Volumes										
	Notes									
7, 25 Temp. 11,4										
Spec. Cond.										
Carr. Cond. 928										
Reday Pol 10	Percent Gos: O-									
0.0. 0.48 1	Percent LEL:									
<u>:</u> :										

Hud & Tolkhood, Inc. 340X Gendale Are. 5xie 300 Teleda, Ohia 436I4 Telephane (4/9) 365-208 Fox (4/9) 365-5-487

GROUND-WATER MONITOR WELL DATA SHEET

Monitor Well ID:MWららち

Fex (4(9) 365-5487											
Name: ALBTON - SHERISAN TWP LA	INFORMATION ANDFILL Project No.: 4LBOZ5										
Address: 29975 East Eric Road	, Albion, Michigan 49224										
Conlact: Leroy Schnidt	Telephone: (517) 629-5535										
MONITOR WELL DATA											
Coordinates: <u>a) 5, 250</u> N	Condition of Well: Concretegad cracked, water in										
E 3,750E	annulus (No sand), noweep hole, cut/seplaced lockw/#5476										
Casing Material/Diameter: PX 21	Screened Formation: 54-11041 Dedrock										
Ground Surface Elevation:	Top of Casing Elevation: 960.06										
Total Depth:	Total Depth: (62.64) (From Top of Casing)										
Screened Interval:	Screened Interval: 900.06- 905.06										
(Including Sand Pack)	(Screen Only)										
WEATHER CONDITIONS Weather: 5 Temperature: 70°F											
Barometric Pressure:	Wind Direction: W										
FIELD MEASU	RED PARAMETERS										
Personnel Present: N. Beneuke P. Da											
Measured Total Depth: 62.64	Static Water Level: 14.00 '										
(From Top of Casing) Volume of Static Water: 7.999	(From Top of Casing) Ground-Water Elevation: 944.06										
Totalic of State Hale?											
Date of Purging: 10/28/79	ING DATA Time of Purging: /540										
Purging Method: disp. bailet	Volume Purged: 255a										
Purging Role: Variable											
Well Volumes Purged	Volume-to-Purge Calculation Table										
initial I 2 3 4	Well Casing Gallons Per Feel of 3 Well Gallons Dia. (in.) Ft. of Depth Water Volumes to Purge										
pH 7.49 7.17 7.18 7.17	Dia. (in.) Ft. of Depth Statemy Volumes to Purge 2 0.163 × 42.64 × 3 × 23.7										
Temp. 13.8 11.6 11.5 11.3	4 0.653 x x 3										
Spec. Cond.	6 L469 X X 3 -										
Corr. Cond. 1188 1238 1236 1239 Redox. Pol.											
0.0.											
Turbidity Q 0 0 0											
SAMPI	ING DATA										
Date of Sampling: 10 28 199	Time of Sampling:										
Sampling Method: disp-ba. Ter	Static Water Level: 15.25 7 (At Time of Sampling)										
Final/Additional Well Volumes	(At Time of Sampling)										
1 2 3 4											
pH 7.17	Notes										
Temp. [1.3]											
Spec. Cond.											
Corr. Cond. 12.39											
Redox. Pot Com	Percent Gas: D										
0.0. 0.48ml	Percent LEL: 0										
D.O. O.H.B.M.											

ATTACHMENT A-3

Chain of Custody and Request for Analysis Form

	CILAIN	OF CU	CMODY	DE	CODD			PAGE OF
Hull & Associates,		OF CU	21001	ΚĽ	CORD			NO. 3792
6130 Wilcox Pond 3401 Ci	Dhio 43614 Phone: (513)459-987 (419)385-2018 FAX: (513)459-9869 (19)385-3489		rkway, Suite 5 ints, Ohio 44728 4-7100 -7104	PRESERVA	TIVES C	ANA D At	LYSES	
Client: OHM Defe Site: Al hiOn-ShOVIAC Project#:ALBD 35 Samplers. D. PL:NCLE	Phase: 99.MNI -, P.Davis	A APP A C ASPISTOS B D SEDMENT C G CHOLMOMATCH D P PRODUCT S SON, E W WATER F Z OTHERS C AR sempares are kept	- Cool ony, CF C F - 1 - MNOS MARC2 M MSSO, MAC2 - NEORH MAS12 - ZINCENDER + NOOM, prist - MaySSOS(0 0087;) - MCC, pH <2 01 4°C.					
PROJECT SAMPLE NO. LOCATION	SAMPLE SAMPLER TYPE 10	CONT. METALS DA	AMPLING ATE/TIME	ZZ	7 <u>7</u> /			COMMENTS
ALBOAS : MWOSSB: G.) 3 F 102	(330)	1				ļ
ALBOAS MWOASB GO	3799 : 340	3 F 100	410 1	1	1			
ALBOAS : FBI :W	<u> 102799 : 340</u>	3 F 108	1845		1			
ALBORS MWOYSB GI	D2899 :340	3 F 100	1215		1			
ALBORS MWOSSB GIL	DA899 :340	3 F 10a	- 1314 () I					
AL8025 MWD9SB G11	2899 : 34D	3 F 108	Viczo 1					
	:							
1 1	:							•
: :	:							
: :	:							
: ;	:							
: :								
RELINQUISHED BY RELINQUISHED BY	TIME: 4-00- pm DATE: RECEN	VED BY: FCD EX VED BY	DATE 10-29 TIME: 4-00 DATE -	-pm	Deliver To	Test /	ced Ex	
RELINQUISHED BY:	TIME: RECENTIME:	150 FOR LABIET	1	- 99 - am	NOTES:_	Recon		np. Blank
COOLER TEMPERATURE AS RECEIVED 'C :	<i>'</i>	BUTION HITE UAB USE (MUST BE RE FLOW UAB USE HIE RETAINED BY HAI	ТИЯНЕЙ ЖТН ЙЕРОЙТ)		TURN AF	NIT DNUOS	ΙΕ: 	21 DAYS

Ship UPS Mores pH S.U. 7,4 Specific Consuctance abonts Temp. oc. 70 18 Observed Organ mark O et H mooths — 1 8 Sample Containers Provided By, Test Summers by, MMM Please referenced on all analytical reports	Projectif solly: Address: 29975 EAST TERE ROAD ALE COMBACT LEROY SCHMIDT Address: 29975 EAST TERE ROAD ALE COMBACT LEROY SCHMIDT Sample Type: GROUND WATER GENERAL X Specific Conductance Billing Address/PO # Sample Type: GROUND WATER CHECK Conductance X Field X Pell X Field X Fie
Cuert Puts up Test America. Inc. Received by: 777. Septons	REQUES XVANSHIP (AN ION, MICHICA Telephone. Telepho
Sie Dehrenyford up Swinceries Date 10/34	Report to the first transform transform to the first transform to the first transform to the first transform to the first transform
(X) Our sampang	Sample Date: 10/37/79 WILLIAM PETRUZZI WISC ORGANICS WIES ORGAN

أأسر



Address: 29975 EAST ERIE	ROAD, ALBION, MICHIGAN, 49224		
Contact: LEROY SCHMIDT	Telephone: 517-629		WILLIAM PETRUZZI
Sample ID#: -ALB025		BCOS: MIN DUSB: GIDA	
Billing Address/PO #:		, , ,, ,, ,, ,, ,, ,, ,, ,, ,, ,, ,, ,, 	
Sample Type: GROUND W/	ATER	X Grab	Composite
GENERAL		METALS	
X Specific Conductance	Paint Filter Yest	T. D.	MISC ORGANICS
X Field	Flash Point	. Auminum	☐ MUBE
آس .	Readivity (CN, S)	Antimony	☐ BTEX
X Diss Oxygen	T rox	A 国内 Artonic	TPH TPH
X Field	T	Barium	MDNR Scan 1
F .	岩	55	8
	Chloride	☐ ☐ Seryllum	MDNR Scan 2
<u>х]</u> рн	Cyanide	Cadmium.	MONR Soun 3
X Field	Fluoride	Calcium	MONR Scan 4
L Lab	Hydrocarbons-IR	Chromsum	MDNR Scan 5
X Temporature	MBAS	Cobalt	MDNR Scan 6
X Field	X N-Ammonia	Copper	MDNR Scan 7
·	N-Kjeldahi		MDNR Scan 8
x]	N-Organic	∏ (•»	Vocs. To
			VOC'S TCL (BENZENE AND VINYL CHLOR
K Freed	N-Nitrate-Nitrite	Magnesium Magnesium	TCLP
	N-Nante	Manganese	☐ TCLP-AII
I/S Dry Solids	Ol & Grease	Mercury	Metats-Michigan (10)
_] rvs	Phenois	Molybdenum	Metals (8)
rss	Phosphorus	Nickel	Volatiles
vss	Silica	Polassirum	Semvolaules
ŽĪπos	Suffate	Selenkum	Herbicides/Pesticides
Acidity '	Surfice	☐ ☐ Siver	Matrix Spike
ξ .	7	Sodum	ADDITIONAL
Alkalinity, Total	Turbidity	Thetlium	_
Alkalinity, as CaCO ₃			1,2-DIBROMO-3-CHLOROPE
Alkalinity, as HCO ₃	Priority Pollutants-All	. ∐ ∐ ™	닏
BOO-5	Votatile Organics	☐ ☐ Titanium	<u> </u>
<u></u> τ∞c	Base/Neutral Extractables	Va∩adium	<u> </u>
Total Hardness	Acid Extractable (Phenols)	Znc	<u> </u>
	Inorganics (13 Metals + Cyanide)	"T - Total Metals	
	Posticides and PCB's	*D - Dissolved Metals	
Ship UPS	Client Pick-up	Site Delivery/Pick-up	X Our Sampling
15		C) Successive Assessed	Carl Coli Sauthard
Notes pH S U.= / 17 Specific Conductance whom	1083		
Temp. oC=			
Dissolved Oxygen mg/L=	<u>0.167</u>		
ett mvolts*	17		
Sample Containers Provided By.	Test America, Inc	SAMPLERS.	
	1 - 0	10 1 . /.	2 (2 2

	E ROAD, ALBION, MICHIGAN, 49224	E535 (A) Based	
Contact LEROY SCHMIDT	Telephone: 517-629-	5535 YO Report	to: WILIAM PETRUZZI
Sample ID#: ALBU25 Billing Address/PO #.	FB - QEMOOT - TO40 ALE	02) 11 100 11	
Sample Type: LAB WATER	R	X Grab	Composite
Odinpic Type. CAD VALLE		. <u> </u>	
GENERAL		METALS	
Specific Conductance	Paint Filter Test	יס יז	MISC ORGANICS
Field	Flash Point	Aluminum	
Lab	Reactivity (CN, S)	Antimony	BTEX
Diss Oxygen	П тох	Arsenic	TPH
Field		Barium	MDNR Scan 1
Lab	Chionde	Beryllium	MDNR Scan 2
	Cyanide	Cadmium	MDNR Scan 3
<u> </u>	<u> </u>	Calcium	MDNR Scan 4
∐ Field	Fluonde	88	=
Lab	Hydrocarbons-IR	Chromium	MDNR Scan 5
Temperature	☐ MBAS	Cobalt	MDNR Scan 6
Field	X N-Ammonia	Copper	MDNR Scan 7
Lab	N-Kjeldahi	U Iron	MDNR Scan 8
eHi	N-Organic	Lead	VOC'S - TCL (BENZENE AND VINVL CHL
Field	N-Nitrate-Nitrite	Magnesium	TCLP
Lab	N-Narite	Manganese	TCLP-All
T/S Dry Solids	Oil & Grease	Mercury	Metals-Michigan (10)
Tvs	Phenois	Molytidenum	Metals (8)
Σ τss	Phosphorus	Nickel	Volables
Nvss	一	75 75	Semivolatiles
≒	Silica	Potassium	=
ΣΣ τοs	Sulfate	Selenium	Herbicides/Pesticides
Acidity	Sulfide	Silver	Matrix Spike
Alkalinity, Total	Turbidity	Sodium	ADDITIONAL
Alkalinity, as CaCO ₃		Thallium	1.2-DIBROMO-3-CHLORO
Alkalinity, as HCO ₃	Priority Pollutants-All	Tin	, <u> </u>
BO0-5	Volatile Organics	Titanium	<u> </u>
	Base/Neutral Extractables	Vanadium	-
Total Hardness	Acid Extractable (Phenols)	Zinc	O
Ā	Inorganics (13 Metals + Cyanide)	*T - Total Metals	
ñ	Pesticides and PCB's	*D - Dissolved Metals	<u> </u>
	~		
Chin Lines	Chara Statute	Sina Daluman (Disk	up X Our Sampling
Ship UPS	Client Pick-up	Site Delivery/Pick-	CA CO Sampling
Notes:			_
			
Sample Containers Provided By.	Test America, Inc.	SAMPLERS	



Hull and Associates, Inc. 3401 Glendale Ave, Suite 30 Toledo, Chio 43614 (419) 385-2018

REQUEST FOR ANALYSIS

Sheel 1 of 1

(419) 385-5487 (fex))		0/-0/06
	HERIDAN TOWNSHIP LANDFILL	San	nple Date: 10/a8/99
~	ROAD, ALBION, MICHIGAN, 49224 Telephone 517-629-55	35 Report to:	WILLIAM PETRUZZI
Contact: LEROY SCHMIDT Sample ID#: ALBOSS	Telephone 517-629-55	30-5 (AUD045B)	
Billing Address/PO #:	7101		7/11/2
Sample Type: GROUND W	ATER	K Grab	Composite
GENERAL		METALS	
X Specific Conductance	Paint Filter Test	ים יי	MISC ORGANICS
X Fleto	Flash Point	Aluminum	MTBE
	Readivity (CN, S)	Antimony	BTEX
X Disa Oxygen	Тох	Arsenic	ТРН
X Field	☐ c∞	Barlum	MONR Scan 1
Ĩ Lab	Chlonde	Beryllium	MONR Scan 2
х рн	Cyanide	Cadmium	MDNR Scan 3
X Field	Fluoride	Cakaum	MDNR Scan 4
Lab	Hydrocarbons-IR	Chromium	MONR Scan 5
X Temperature	MBAS	Cobaff	MONR Scan 6
X Field	X N-Ammonia	Cooper	MDNR Scan 7
	N-Kjeldah!	□ □ Iron	MDNR Scan B
∑ ен	N-Organic	∏ Lead	
	<u> </u>		VOC'S - TCL (BENZENÉ AND VINYL CHLORIDE)
X Field	N-Nitrate-Nitrite	Magnesium Magnesium	TCLP
	N-Nitrite	Manganese Manganese	TCLP-Ari
T/S Dry Solids	Oil & Grease	Mercury .	Metals-Michigan (10)
∐ t∨s	Phenois	Molybdenum Molybdenum	(Metals (8)
TSS	Phosphorus /	Nickel	Volatiles
∐ vss	□ Sdica Presi	Potassium	Semvolatiles
∠ Ltos	Sutfate	Selenium	Herbioides/Pesticides
Acadity	Sutfide	Silver	. Matrix Spike
Alkalinity, Total	Turbidity	Sodium	ADDITIONAL
Alkalinity, as CaCO ₃		Thetium	1.2-DIBROMO-3-CHLOROPROPAL
Alkatindy, as HCO ₃	Priority Pollutants-All	∐ ∐ ™	<u> </u>
900-5	Volatile Organics	Titanium	<u> </u>
r∞	Base/Neutral Extractables	Vanadium	
Total Hardness	Acid Extractable (Phenols)	Zinc Zinc	D
	Inorganics (13 Metals + Cyanide)	*T - Total Metals	D
	Pesticides and PCB's	*D - Dissolved Metals	O
Ship UPS	Client Pick-up	Site Delivery/Pick-up	X Our Sampling
7 14			(i) concentrated
Notes: pH S U.= Specific Conductance whom	ns= 13 (CL)		
Yemp oce 11.8	n 47		
Orssolved Oxygen mg/L=	0.31		
		CAMPI COC	
Sample Containers Provided By	Test America, Inc	SAMPLERS (D)	20/00
Submitted by MAN	Received by	1000 Date: 10/2	DU 7 7
~		/ 1	

Hull and Aspociases, Inc 3401 Glendale Ave. Suite 300 Toledo, Ohio 43614 (419) 335-2018 (419) 335-2018

REQUEST FOR ANALYSIS

Sheet	1	of	1

Address: 29975 EAST ERIE	ROAD, ALBION, MICHIGAN, 49224		
Contact. LEROY SCHMIDT	Telephone: 517-629-55	35 Report to:	WILLIAM PETRUZZI
Sample ID#. ALB025 -	- ORMOOI TOO FILE	28 MW085B: G1028	71:340
Billing Address/PO #:			
Sample Type: GROUND WA	TER	X Grab	Composite
GENERAL		METALS	
Specific Conductance	Paint Fitter Test	1. D.	MISC ORGANICS
X Field	Flash Point	Aluminum	 МТВ Е
Lab	Reactivity (CN, S)	Antimony	
Diss Oxygen	тох	Arsenic	
X Field	coo	Barlum	MDNR Scan 1
Lab	Chloride	Berytlium	MDNR Scan 2
рн	Cyanide	Cadmium	MDNR Scan 3
X Field	Fluoride	Calcium	MDNR Scan 4
∏ Lab	Hydrocarbons-IR	Chromium	MDNR Scan 5
Temperature	☐ MBAS	Cobat	MDNR Scan 6
X Field	X N-Ammonia	Copper	MONR Scan 7
Π̃ω _b	N-Kjeldahl		MDNR Scen 8
ен	N-Organic	Lead	VOC'S - TCL (BENZENE AND VINYL CHLORIDE)
X Field	N-Nitrate-Nitrite	Magnesium	(BENZENE AND VINYL CHLORIDE) TCLP
Lab	N-Nutrite	Manganese	TCLP-AII
Tris Dry Solids	Oil & Grease	Mercury	Metals-Michigan (10)
Tvs	Phenois	Molybdenum	Metals (8)
ਜੋ⊤ss	Phosphorus	Nickel	Volatiles
Tvss	Silica	Potessium	Semivolatiles
Žiπs	Suffate	Setenium	Herbicides/Pesticides
Acidity	T	Silver	Matrix Spike
Alkalinity, Total	Turbudity D	Sodium	ADDITIONAL
Alkalinity, as CaCO ₃		Thetium	1.2-DIBROMO-3-CHLOROPROPAN
Alkatinity, as HCO	Priority Pollutants-All		
900-5	Volatile Organics	Titanium	7
770c	Base/Neutral Extractables	Venedium	H
Total Hardness		88	H
local Hardness	Acid Extractable (Phenols)	∐ Znc	片
	Inorganics (13 Metals + Cyanide)	"T - Total Metals	닏
	Pesticides and PCB's	*D - Dissolved Metals	. U
7 611.100	Client Pick-up		D
J Ship UPS	7	Site Delivery/Pick-up	X Our Sampling
Specific Conductance whoms			
Temp oC= 11.4	2-48		
Dissolved Oxyglen mg/L= eH mvolts=	<u> </u>		
		CAUDI COC.	
Sample Containers Provided By	Test America, Inc	SAMPLERS:	2/00
Submitted by. DIAN	Received by, 7 //.	1940 Date: 10/3	ω_{I} 7



REQUEST FOR ANALYSIS

Sheet 1 of 1

(419) 385-5487 (fax)						1-1-100
Project/Facility: ALBION-SH	ERIC	DAN TOWNSHIP LANDFILL		Sa	mple Date	10/28/79
	ROA	D, ALBION, MICHIGAN, 49224				
Contact: LEROY SCHMIDT		Telephone: 517-629-55		Report to:		M PETRUZZI
Sample (D#: At 8025	_	ORMODI TOWN ALKON	, MOD	478: 61038	99:34	<u> </u>
Bitling Address/PO #:						
Sample Type: GROUND WA	TER		×	Grab	L	Composite
GENERAL		· · · · · · · · · · · · · · · · · ·	METALS			
X Specific Conductance		Paint Filter Test	r. o.		MIS	C ORGANICS
X Field	ī	Flash Point		Aluminum		MTBE
Пив	Ħ	Reactivity (CN, S)	ΠŌ	Antimony		BTEX
K Diss Oxygen	ñ	тох	羽刃	Arsenic		трн
X Field	\Box	COD		Bartum		MDNR Scan 1
ا ليمه	\Box	Chloride		Berytlium		MDNR Scan 2
Σ pH	\Box	Cyanide		Cadmium		MDNR Scan 3
X Fleid	\Box	Fluoride		Calcium		MDNR Scan 4 .
Lab		Hydrocarbons-IR		Chromium		MDNR Scan 5
X Temperature	\Box	MBAS		Cobatt		MDNR Scan 6
X Field	$\overline{\mathbf{x}}$	N-Ammonia		Copper		MDNR Scan 7
است ا	\Box	N-Kjeldahl		kon		MONR Scan 8
X aH	Ŏ	N-Organic		Lead		VOC'S - TCL (BENZENE AND VINYL CHLORIDE)
X Field	\Box	N-Nitrate-Nitrite		Magnesium	TCL	
∏ Lab	Ħ	N-Nitrite	ПП	Manganese	Ш	TCLP-All
T/S Dry Solids	Ħ	Oil & Grease	ΠĦ	Mercury	Ħ	Metals-Michigan (10)
Tvs	Ħ	Phenois	ΠĦ	Molybdenum	\sqcap	Metals (8)
Πτss	Ħ	Phosphorus	Пñ	Nickel	一百	Volatiles
□vss	Ħ	Silica	ПП	Potassium	Ħ	Semivolatiles
T TOS	Ħ	Sulfate .	ĦΗ	Selenium	Ħ	Herbiades/Pesticides
Acidity	H	Sulfide (A	꿈꿈	Saher	片	Matrix Spike
-	H	ofter	꿈꿈	•	ن)	•
Alkalinity, Total	Ш	Turbidity P	무무	Sodium	~	DITIONAL
Alkalinity, as CaCO ₃	$\overline{}$		무무	Thalkum	닖	1.2-DIBROMO-3-CHLOROPROPA
Alkatinity, as HCO ₃	닏	Priority Pollutants-All	무무	Tin	닏	
<u></u> BO0-5	LJ	Volatile Organics	빌빌	Titarium	\sqcup	
☐ roc		Base/Neutral Extractables		Vanadium		
Total Hardness	$\overline{\Box}$	Acid Extractable (Phenois)	$\Pi\Pi$	Zinc		
	Ξ	Inorganics (13 Metals + Cyanide)	17 - Total		一片	
	H				片	
	Ш	Pesscides and PC8's	*D - Disse	olved Metals	لبا	
Ship UPS	L	Chent Pick-up		Site Delivery/Pick-up	×.	Our Sampling
Notes, pH S U = 7		339				
Temp oC= \\ 5	- 1	×12 1				
Dissolved Oxygen mg/L=	\overline{a}	18				
eH myolts= -6	_					
Sample Containers Provided By	Tes	America, Inc.	<u></u>	SAMPLERS.		
Submitted by: Mdlin		Received by: M. L.	Boyd	Date: /0/	30/9	'9
1/00			T^{-}	— — _		

				7	}	-	4			μ.			لجر			~	199100
PAGE 1 OF 19			COMMENTS				+							3	.7035	bank .	OAYS
	ANALYSES ANALYSES	A ROXIVE OF THE PROPERTY OF TH		9	0				9					Test America	elivery: FER EX	· 🗸	TURN AROUND TIME:
CHAIN OF CUSTODY RECORD	PRESERVATIVES	13/555	NA WAY)	7	2	- -		0 7					-59 Deliver To	Method of Delivery:		
USTODY	O Morceasulte Brights 4946 Gology Pervey, Suite S Workerside Recology, One 44128 Phone: (216)514-7104 FAX: (216)514-7104	PRESERVANGS A - Cool eart, cc' C B - Hwdy pricz C - Hygo pricz C - Hygo pricz C - Hygo pricz C - Hygo pricz C - Socialda + Profit C - Mag Sp () 00087 C - HC - Drick C	SAMPLING DATE/TIME	1 Sharker	1 Shart 1801	1087/201 - 22/2/201	1 008 dec.	1 200 LESSECT	- 25 m	\	\	\	\	DATE 10 - 29 - 59	DATE:	012	1 P
OF C		C CONDUCTOR S SOL	NO. OF METALS	 -	TT	17 1	U U	T H	Z 0					I'CA EX		RECENED FOR LAB BY:	COM USE (MUST
CHAIN	□ Massa 4700 Date Dries Sulte 172 Masson, Ohio 45040 Phone: (\$13)459-9869 FAX: (\$13)459-9869	AH.	SAMPLER		£	0.4°C	525	H COC.	340			 	 	RECEINED	RECEIVED		C MUST NOT STATE OF THE STATE O
es, Inc.	-2018	Man Twp Lang Phose: 20 9	SAMPLE	:G103899	: GIDAPAGMS	GIOSER MSD	G 103899 A	91176910	1 103899 V]			DATE: 10-29-99	DATE	DATE:	2
Hull & Associates, Inc.	C Bublin C I Gueda \$130 Ween Red 3401 General 4 Promet. (\$1753,247)7 504F 200 From (\$1753,247)7 504F 200 From (\$1753,247)7 (\$1753,247)7 From (\$1753,247)7 (Clent: Oth Rendants Site: Marsh - Saulaan Two Lanth Project#: Al 1005 Somplers: D. Security P. Prau)s	PROJECT SAMPLE NO LOCATION			PLANS SENDE	A HABOID: BROWN: CENTAL	Percolor Committee Colors					 	RELINDUISHED BY	IQUISHED BY:	RELINDUISHED BY.	COOLER TEMPERATURE AS RECENED 'C :
			۵	$\overline{\mathcal{A}}$	7	2	2 Z		12					2	i		

70.00

Tolodo, Ohso 43		ANALYSIS			Sheet 1 of 1
(419) 385-2018 (419) 385-5487 (fax					
Project/Facility: ALBION-S	SHERIDAN TOWNSHIP LANDFILL		Sar	mple Date:	10/28/99
	E ROAD, ALBION, MICHIGAN, 49224			Tiple Date.	. , , , , , , , , , , , , , , , , , , ,
Contact: LEROY SCHMIDT		5535	Report to:	WILLIA	M PETRUZZI
Sample ID#: ALB025	- OSMOOT ISMA ALB	nas: Ru	U04:6103	879	M 5. 340
Billing Address/PO #.					
Sample Type: DRINKING V	VATER	_ X	Grab		Composite
GENERAL -		METALS			· · · · · · · · · · · · · · · · · · ·
X Specific Conductance	Paint Fitter Test	1. b.		MISC	CORGANICS
X Field	Flash Point	$\sqrt{2}$	Aluminum		MTBE
∏ tao	Reactivity (CN, S)	2×10^{-2}	Antimony		BTEX
X Disa Oxygen	Tox	包包	Arsenic	\sqcap	TPH
X Field		ĦΠ	Barlum .	$\overline{\sqcap}$	MDNR Scan 1
· 🗂 🐷	Chloride	ΠĦ	Beryllium	ñ	MDNR Scan 2
X pH	Cyanide	ПП	Cadmium	ñ	MDNR Scan 3
X Field	Fluoride	ΠĦ	Calcum	Ħ	MDNR Scan 4
C iso	Hydrocarbons-IR	불	Chromium	片	MDNR Scan 5
	MBAS	和光	Cobalt	님	MONR Scan 6
	=	俗님		H	
X Field	X N-Ammonia	జ	Copper	님	MDNR Scan 7
tab	N-Kjeldshi	무무	iron	님	MDNR Scan 8
X eH	N-Organic	$\Box\Box$	Lead	×.	VOC'S - TCL (BENZENÉ AND VINYL CHLORIDE
X Field	N-Nitrate-Nutrite	니니	Magnesium	TCL	P
Lab	N-Niute	ALL KI	Manganèse		TCLP-AM
T/S Dry Solids	Ol & Grease		Mercury		Metals-Michigan (10)
☐ TVS	Priencis /		Molybdenum		Metals (8)
TSS	Phosphorus Char	個白	Nickel		Volatiles
Tivss	Salica	西西	Potassium	ñ	Semivolatiles
Tros	Suffate	ññ	Selenium	ñ	Herbicides/Pesticides
Acidity	Suffide	ññ	Silver	Ħ	Matrix Spike
Alkalinity, Total	Turbidity	ЙÄ	Sodium	400	ITIONAL
Alkalinity, as CaCO ₃		HH	Thatlium	Ñ	1,2-DIBROMO-3-CHLOROPROF
Alkalinity, as HCO ₃	Priority Pollutants-All	꿈꿈	Tin	. 음	12-biskomo-s-cricokorkor
Ξ .	Ξ .	HH		님	
<u></u> B00-5	Votatile Organics	뭐님	Titanium	닏	
∐ ™	Base/Neutral Extractables	닐닏	Vanadium	닏	
Total Hardness	Acid Extractable (Phenols)	\Box \Box	Zinc	Ц	
	Inorganics (13 Metals + Cyanide)	7 - Total A	Actais	Ų	
	Pesticides and PCS's	*D - Dissol	ved Metals		
Ship UPS	Client Pick-up	U	Site Delivery/Pick-up	×	Our Sampling
Notes: pH S.U.≖ Specific Conductance uhor					
Temp. oC=	753				
Dissolved Oxygen mg/L×					
eH mvotis=					
Sample Containers Provided By:	Test America, Inc.		SAMPLERS		
Submitted by MAN	Rocerved by.	Doyd	Date: 10/3	0/99	
Please reference on all analytical		1		, -	
		17			

	J. 1			₹**	.,	- .	
	Hull and Ass 3401 Glordale Tolodo, Obio 47 (419) 385-2018 (419) 385-5487 (fax)	Ave Sui 534)	REQUEST FOR	R ANALYS			Sheet 1 of 1
			DAN TOWNSHIP LANDFILL D. ALBION, MICHIGAN, 49224			Sample Date	: 1 <i>01901 1.</i>
	Contact: LEROY SCHMIDT	, ROA	Telephone: 517-629		Report to	o. MILLA	W PETRUZZI
	Sample ID#: ALBezs	(1)		TW 12 22 1	W04:6100		340
	Billing Address/PO #:						770
	Sample Type: DRINKING W	ATER		_ 🗵	Grab		Composite
	GENERAL						
				METAL			
		님	Paint Fifter Test	ED E	1	MIS	C ORGANICS
	X Fleid	님	Flash Point	人 第 令	∫ Aluminum 1	닏	MTBE
	Lab	님	Reactivity (CN, S)		Antimony	님	BTEX
	Diss Oxygen	닏	тох , 🗸		Arsenic	닏	TPH
	X Field	닏	COD	닏닏	Barium	닏	MDNR Scen 1
	Lab	Ц	Chloride	니니	Berytlium	Ų	MDNR Scan 2
	<u>х</u> _рн	\Box	Cyanide		Cadmium		MDNR Scan 3
	X Field		Fluoride		Calcium		MONR Scan 4
	Leb		Hydrocarbons-IR		Chromium		MDNR Scan 5
	X Temperature		MBAS	<i>≫</i> 🖾 🗵	Cobatt		MDNR Scan 6
	X Fleid	×	N-Ammonia	/ 🗆 🗆	Copper		MONR Scan 7
	Lab		N-Kjeldahi		Iron	\Box	MDNR Scan 8
	X eH	Ē	N-Organic	nn	Lead	$\overline{\square}$	VOC'S - TCL (BENZENE AND VINYL CHLORIDE)
	X Field	$\overline{\Box}$	N-Nitrate-Nitrite	\ \(\bar{a}\)	Magnesium	TCI	
		님	N-Nitrate-Nitrite	グ咒ド	i -	101	
		H		4 12 1	Manganese	H	TCLP-AI
	T/S Dry Solids	님	Oil & Grease	무	Mercury	님	Metals-Michigan (10)
1	U tvs	님	Phenois	님 는	Molybelenum	님	Metals (8)
pur.	₹ rss	님	Phosphorus	/か届ラ	Nickel	닏	Volables
	∐ vss	닏	Sitica	ヾ 닕∟	Potassium	닏	Semivolatiles
	. 20T	닏	Suffate	닏닏	Setenium	닏	Herbickles/Pesticides
	Addity	Ц	Sutfide	닏닏	Silver		Matrix Spike
	Alkalinity Total	·U	Turbklity	닏닏	Sodium	ADI	DITIONAL
	Alkalinity, as CaCO ₃			\sqcup \sqcup	Thatium	×	1.2-DIBROMO-3-CHLOROPROPAL
	Alkalinity, as HCO ₃		Priority Pollutants-All		Tin		
	800-5		Volatile Organics		Titankem		
	□ roc		Base/Neutral Extractables		Vanadium		
	Total Hardness	\Box	Acid Extractable (Phenols)		Zinc	П	
	_	ñ	Inorganics (13 Metals + Cyanide)	T Total	i Metals	ñ	
		ñ	Pestidides and PCB's		olved Metals	ñ	
	Ship UPS		Client Pick-up		Site Delivery/Pick-up	. 🗴	Our Sampling
	Notes; pH S.U. 7.44		·				
	Specific Conductance whom Temp. oC= 12. 8	- 7	PO				
	Dissolved Oxygen mg/L* /	20	8				
	eH myotis= -Z1						

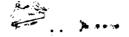
Sample Containers Provided By: Test America, Inc.

Submitted by plans

SAMPLERS: 0475, P/D
Date: 0/30/99

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Tolodo, Ohio 436 (419) 385-2018		ANALYSIS	Sheet 1 of 1	T F
(419) 385-5487 (fax			n halan	(4)
	HERIDAN TOWNSHIP LANDFILL	s	ample Date: 10/d3/77	Project/Facility
Address: 29975 EAST ERIS Contact: LEROY SCHMIDT	FROAD, ALBION, MICHIGAN, 49224 Telephone: 517-629-5	535 Report to:	WILLIAM PETRUZZI	Address: 2997
Sample ID#: ALBO25		225: MW 065B: GI		Contact: LERO
Billing Address/PO #		Z-1.2 1.1 - D-2-12		Sample ID#:"
Sample Type: GROUND W.	ATER	X Grab	Composite	Billing Address/P
GENERAL		METALS		Sample Type:
X Specific Conductance	Paint Filter Test	T* O*	MISC ORGANICS	GENERAL
X Field	Flash Point	- Aluminum	MTBE	X Specific Con
∏ Lao	Reactivity (CN, S)	Antimony	BTEX	X Freld
X Diss Oxygen	TOX	Arsenic	TPH ·	Lab
X Field	Ħ	7. —	MDNR Scan 1	X Diss Oxyger
~	<u> </u>	Banum.	Ħ	X Field
∐ Lab	Chloride	Beryllium	MDNR Scan 2	Lab
X. PH	Cyanide	Cadmium	MDNR Scan 3	X pH
X Field	Fluoride	Calcium	MDNR Scan 4	X Feeld
	Hydrocarbons-IR	Chromium	MDNR Scan 5	Lab
X Temperature	☐ MBAS	∐ ∐ cooser	MONR Scan 6	X Temperature
<u>X</u> Field	X N-Ammonia	Copper	MDNR Scan 7	X Freid
	∐ N-Kjeldahi	☐ ☐ Iron	MDNR Scan 8	
х eн	N-Organic	Lead	VOC'S - TCL (BENZENE AND VIMIL CHLORIDE)	Lab []
X Field	N-Nitrate-Nitrite	Magnesium	TCLP	∑ eH
Lab	N-Nitrita	Manganese	TCLP-AI	× Field
T/S Dry Solids	Oil & Grease	Mercury	Metals-Michigan (10)	Lab
Πτvs	Phenois P	Molybdenum	Metals (8)	☐ T/S Dry Solids
Tss	Phosphorus	☐ ☐ Neckel	Volatiles	∐ īvs
□vss	Silica	Polassium	Serrivotatiles	TSS
Najos	Sultane	Selenium	Herbicides/Pesticides	vss
Acidity	Sulfide	Silver	Matrix Spike	TDS
	7	Sodium	ADDITIONAL	Acouty
Alkalinity, Yotal Alkalinity, as CaCO ₃	Turbidity	☐ ☐ Thefing	1.2-DIBROMO-3-CHLOROPROPANE	. Alkalinity, Total
=	[]		1,2-DIBROMO-SCHEDROF NOF ME	Alkalinity, as C.
Alkalinity, as HCO ₃	Priority Pollutants-All		님	Alkalinity, as Hi
<u>U</u> 800-5	Volatile Organics	Ttanum	L	□ BOD-5
∐ t∞c	Base/Neutral Extractables	☐ ☐ Variadium	<u> </u>	
Total Hardness	Acid Extractable (Phenols)	∐ Zinc	Ц	Total Hardness
	Inorganics (13 Metals + Cyanide)	"T - Total Metals	<u> </u>	
	Pesticides and PCB's	*D - Dissolved Metals	D	
				
L」 Ship UPS つっこ	Client Prok-up	Site Delivery/Pick-up	X Our Sampling	Ship UPS
Notes. pH S.U = 7.13 Specific Conductance unfor	ms* 1258			Notes pH S U =
Temp. oC= 11, 10	~-66			Specific Cor
Dissolved Oxygen mg/L* eH mvolts*	0.15 -4 mV			Temp oC= Dissolved O
Sample Containers Provided By:	Test America, Inc.	SAMPLERS:		eH mvoits=
-d 0 -:	(M)	Ro of into	100	Sample Containers
Submitted by. 17111	Received by. 9'/.	040 Date: 10/3	0/77	Submitted by
'Please reference on all analytical	reports	V		*Please reference of



Hall and Associates, loc 3401 Gendale Ave Suite 300 Toledo, Onio 4514 REQUEST FOR ANALYSIS Sheet 1 of 1 (4/9) 315-3018 (4/9) 315-3017 ((as)								
Project/Facility ALBION-SHERIDAN TOWNSHIP LANDFILL Sample Date: 10/28/99								
	ROAD, ALBION, MICHIGAN, 49224							
Contact: LEROY SCHMIDT Sample ID#: ALBO26	Telephone: 517-629-		WILLIAM PETRUZZI					
Billing Address/PO #	/	rbogz : brout . Che	2879 MSD 340					
Sample Type: DRINKING W	VATER	X Grab	Composite					
GENERAL		METALS						
X Specific Conductance	Paul Filler Test	T* D*	MISC ORGANICS					
X Field	Flash Point	Auminum	☐ MTBE					
Lab	Reactivity (CN, S)	Antmony	BTEX					
X Diss Oxygen	Tox	Arenic	Птен					
	7	XX	= "					
X Field	□ ∞	∐ ∐ Barium	MDNR Scan 1					
Lab	Chloride	Berytlium Berytlium	MDNR Scan 2					
<u> X </u>	Cyanide	Cadmium	MDNR Scan 3					
X Field	Fluonde	Caloum	MDNR Scan 4					
Lab	Hydrocarbons-IR	Chromium	MDNR Scan 5					
X Temperature	MBAS	√2	MONR Scan 6					
X Freid	X N-Ammonia	Copper	MDNR Scan 7					
	N-Kjeldahi		MDNR Scan 8					
	=	88	=					
х ен	N-Organic	L Lead	X VOC'S - TCL (BENZENE AND VINYL CHLORIDE)					
X Field	N-Nitrate-Nitrite	Magnesium	TCLP					
Lab	N-Nimte	₩ Wanganese	TCLP-Ali					
T/S Dry Solids	Oil & Grease	Mercury	Metals-Michigan (10)					
Πτνs	Phenois	Motybdenum	Metais (8)					
TSS	=	A Nickel	Volables					
~~~	Phosphorus	76 K						
U vss	Silica	Potassium	Semivolatiles					
∐ TDS	Surfate Jud	Selenium Selenium	Herbicides/Pesticides					
Acoity	Suffide	Silver	Matrix Spike					
Alkalinity, Total	Turbidity	Sodium	ADDITIONAL					
Alkalinity, as CaCO ₃	<del>-</del> .	Thallium	X 1,2-DIBROMO-3-CHLOROPROPANE					
Alkadinity, as HCOs	Priority Pollutants-All	ĦĦ ti	<u> </u>					
BOD-5	<b>H</b> .	H H .	H					
$\equiv$	U Volatile Organics □	[ ] Intanium	H					
∐ _™	Base/Neutral Extractables	U Vanadium	¥					
Total Hardness	Acid Extractable (Phenois)	∐	Ц					
	Inorganics (13 Metals + Cyanide)	'T - Total Metals	<b>□</b>					
	Pesticides and PCB's	*O - Dissolved Metals						
Ship UPS	Chent Pick-up	Site Delivery/Pick-up	X Our Sampling					
Notes pH S U =								
Specific Conductance whom	ns=							
Temp_oC = Dissolved Oxygen mg/L =	<del></del>	<del></del>						
eH myolis=								
Sample Containers Provided By:	Test Amenca, Inc.	SAMPLERS						
Submitted by palari	Received by: /()/3()	199 11/39 10/30	/99					
"Please reference on all analysical reports M. C.								

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Hull and Associates, Inc. 3401 Glendale Ave, Suite 300 Toildo, On it 44064 (419) 385-2018
(419) 385-5487 (fax)

REQUEST FOR ANALYSIS

(419) 385-2018		OK ANALISIS	Sheet I di 1
(419) 385-5487 (Jax)			
Project/Facility: ALBION-S	HERIDAN TOWNSHIP LANDFILL		Sample Date: 10/38/99
	ROAD, ALBION, MICHIGAN, 492		
Contact LEROY SCHMIDT		29-5535 Repor	
Sample ID#. ALB025 -	PB OKMOUT T340	ALBCOS, WFBO, WI	Uary 9-1 - 390
Billing Address/PO #.			
Sample Type: LAB WATER		X Grab	Composite
GENERAL		METALS	
Specific Conductance	Paint Fitter Test	T* D*	MISC ORGANICS
Field	Flash Point	Aluminum	MTBE
Lab	Reactivity (CN, S)	Antimony	BTEX
Diss Oxygen	Тох	Arsenic	тън
Field	Coo	Barlum	MDNR Scan 1
Lab	Chloride	Beryllium	MDNR Scan 2
П рн	Cyanide	Cadmium	MDNR Scan 3
Field	Fluoride	Calcium	Ħ
Ħ	7	Chromium	MDNR Scan 4
Lab	Hydrocarbons-IR	770 FS	MDNR Scan 5
Temperature	☐ MBAS	Cobalt	MDNR Scan 6
Field	X N-Ammonia	Copper	MDNR Scan 7
Lab	N-Kjeldahl	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	MDNR Scan 8
eH .	N-Organic	Lead	X VOC'S - TCL (BENZENE AND VINYL CHLORIDE)
Field	N-Nitrate-Nitrite	Magnesium	TCLP
Lab	N-Nitrite	Manganese	TCLP-AII
T/S Dry Solids	Oil & Grease	Mercury	Metals-Michigan (10)
TVs	Phenois	Molybdenum	Metals (8)
TSS TSS	Phosphorus	Nickel	Volatiles
T vss	Silica	Potassium	Semivolatiles
Χποs	Sulfate	Selenium	Herbleides/Pesticides
Acidity	Sulfide	Silver	Matrix Spike
₹ '	8	88	
Alkalinity, Total	Turbidity	Sodium	ADDITIONAL
Alkalinity, as CaCO ₃		Thallium	X 1,2-DIBROMO-3-CHLOROPROPAN
Alkalinity, as HCO ₃	Priority Pollutants-All	L L Tin	닟
BOD-5	Volatile Organics	Titanium	<u> </u>
<u></u> t∞	Base/Neutral Extractables	U Vanadium	<u> </u>
Total Hardness	Acid Extractable (Phenois)	Zinc	O
	Inorganics (13 Metals + Cyanide	T - Total Metals	· D
	Pesticides and PCB's	*D - Dissolved Metals	O
			<del></del>
Ship UPS	Client Pick-up	Site Delivery/Pick	-up X Our Sampling
Notes:			
<del></del>			
Sample Containers Provided By:	Test America, Inc	SAMPLERS:	
Semple Comaniers Provided By:	lest America, inc	SOME LENS:	7 7.

•			<del>-</del> .
	. –	ANALYSIS	Sheet 1 of 1
	SHERIDAN TOWNSHIP LANDFILL		Sample Date: 10/28/97
	IE ROAD, ALBION, MICHIGAN, 49224		
Contact LEROY SCHMID	T Telephone: 517-629-5		to WILLIAM PETRUZZI
Sample ID#: ALBO25	- OGMOOT 17340 AL	ROAD: MINDER	8: 61025118.340
Billing Address/PO #:		<del></del>	
Sample Type: GROUND V	WATER	X Grab	Composite
GENERAL		METALS	
X Specific Conductance	Paint Filter Test	T* D*	MISC ORGANICS
X Field	Flash Point	Atuminum	
li us	Reactivity (CN, S)	Antimony	П втех
X Diss Oxygen	П тох	Arsenic	∏ ₁₈₄
X Fleid		Berken	MDNR Scan 1
7	=	H H	=
Lab	Chloride	Berytlum	MDNR Scan 2
X pH	Cyanide	Cadmium	MDNR Scan 3
X Fleid	Fluoride	Calcium	MDNR Scan 4
Lab	Hydrocarbons-IR	Chromium	MDNR Scan 5
X Temperature	MBAS	Cobert	MDNR Scan 6
X Field	X N-Ammonia	Cooper	MDNR Scan 7
[] Lub	N-Kjeldahi	88	MDNR Soun 8
	<b>H</b> .	님님ᄦ	= '
<u>х</u> ен	N-Organic	Lead	VOC'S - TCL (BENZENE AND VINYL CHLORIDE)
X Field	N-Nutrate-Nitrite	Magnesium	TCLP
Lab	N-Nixtle	Manganese	TCLP-AT
T/S Dry Solids	Oil & Grease	Mercury	Metals-Michigan (10)
Πīvs	Phenois	Molybdenum	Metals (8)
TSS	Phosphorus	Nickel	Volatiles
□ rss	5	88	<b>\rightarrow</b>
	∐ Silica , Д	Potasskim	Semivolatiles
∑X108	☐ Suttate O	Selenium	Herbicides/Pesticides
	Suffide	Silver	Mautx Spike
Alkatinity, Total	Turbidity	Sodium Sodium	ADDITIONAL
Afkalinity, as CaCO ₃		Thattium	1,2-DIBROMO-3-CHLOROPROPA
Alkasinity, as HCO ₃	Priority Pollutants-All	Π Π π _n	
□ B00-5	Votatile Organics	Titanium	ñ ————
∏ _{1∞}	Base/Neutral Extractables	Vanadium	7
= ,	=	55	H
Total Hardness	Acid Extractable (Phenols)	Znc	님
	Inorganics (13 Metats + Cyanide)	°T - Total Metals	닖
	Pesticides and PCB's	*D - Dissolved Metals	LJ
Ship UPS	Client Pick-up	Site Delivery/Pick	up X Our Sampling
Notes: pH SU = 7.13	268		
Specific Conductance who	ms. 350		
Temp oC= 11.10	7.95		
eH myofts= -L	· · · · · · · · · · · · · · · · · · ·		
Sample Containers Provided By:	Test America, Inc.	SAMPLERS:	
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Submitted by: Paux	Received by 7'/.	Dyof Date: 101	3477
"Please reference on all analytics	si reports	11	

			10										PL	P. C.	P	9	-							
COOLER 1	RELINQUISHED BY	RELINGUISHED BY	RELINQUISHED BY:				٠.						BOK: LO	TUBBS: FB	<b>1</b> 25	PROJECT NO.	Samplers:	Project#:	Client:	REPOR	FAX: (61	0130 Mileon P	5	•
AS RECEINED C	HED BY:	SHED BY:	HED BY:										18	FB1	RWO	SAMPLE LOCATION		لادا	CHI STANGA	REPORT TO:	1)385-9070	Dubles  8130 Milcon Rood  Outin, Ohio 43016	Associat	
- m			ļ.,.										Ž	Z	RUDDIO GILLAGA	z''	רוחמ	8035	STAN STAN	PITTE	Phone: (4		Associates, Inc.	•
W	DATE: -	DATE: -	TIME: 25										121 PIIM.	MIRA	1200	TYPE TYPE		Phase:	The Standard	13	Phone: (419)365-2016 FAX: (419)365-3469	Iotedo Dendote Avenue 300	lnc.	
,	, ,	, ,	DATE/1 -2 -95															1	a msnmol	Mendy wanting	FAX: (5			CF
L	RECEN	RECEIVED BY	F 1					''	- "		''		384	188:	:384	SAMPLER		1	2		13)459-9869	□ Mason 4700 Duke Drive, Suite 172 Mason, Ohio 45040		IAIN
TOTAL	RECEPTED FOR LAB BY:	ED 87.	FED BY EX			-	-			_	-		Ø	$\overline{x}$	∞		1 2 ~	* e s	000>	Sums				OF
USE (MUST B			X											77	T	CONT METALS	samples are kept of cr.	WATER WATER	A AME A A C ASSISTED B C ASSIST	T THE	FAX: (216)	□ Marre 1949 Color		C
RIBUTION:  ***RETURNED WITH REPORT)  ***ZELOR =1-00 USE (MAST BE RETURNED WITH REPORT)  ***PET1-00 USE (MAST BE RETURNED WITH REPORT)  ***PROVINCE	DATE //	DATE:	DATE:	\	\	\	\	\	\	\	\	\	11/2/250	35.7cm	11/2/24/10	SAMPLING DATE/TIME	10 m	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	A - Cool and, 4° C F - PLT B - mO ₃ pH/2	PRE SERVATIVES	314-7104	☐ Warrenaville_Heights 4949 Colony Portugy, Suite S Warrenaville Heights, Ohio 44128		CHAIN OF CUSTODY RECORD
(EPORT)	030 27												٦	_		Ι.		Haddy, phose Mask)		5		\$ 20		ŊΥ
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1000,300,016 07/26/99 KM	a DWG									360	1	7	1								7	7		

4	Hull and Associates, Inc. 3401 Glendale Ave. Suite 30 Toledo, Ohio 43614 19) 385-2018 b) 385-5487 (fax)
Project/Facility:	ALBION-SHERIDAN

Hull and Associated the State of State	149, Inc. . Suite 300 REQUEST FOR A	ANALYSIS	Sheel 1 of 1
(419) 385-5487 (fax)	RIDAN TOWNSHIP LANDFILL	Sam	ple Date. 10/28/99
	OAD, ALBION, MICHIGAN, 49224		
Contact: LEROY SCHMIDT	Telephone: 517-629-55		WILLIAM PETRUZZI
Sample ID#: ALB025 - Billing Address/PO #:	- 08M001 - 1940 AL	BOZS: TRI: W10289	1. )-10
Sample Type: TRIP BLANK		X Grab	Composite
GENERAL		METALS	
Specific Conductance	Paint Fitter Test	T- D-	MISC ORGANICS
Field	Flash Point	Aluminum	П мтв∈
\(\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\int_{\inttileftinterm\lint_{\inttileftint\int_{\inttileftinteta\int_{\inttileftinteta\int_{\inttileftin\inttileftintet\int\inttileftinteta\int\inttileftinteta\int\inttileftinteta\intileftinteta\inttileftinteta\int\inttileftinteta\int\inttileftinteta\int\inttileftinteta\inttileftinteta\int\inttileftinteta\inttileftinteta\intileftinteta\intileftinteta\intileftinteta\intileftinteta\intileftinteta\intileftinteta\intileftinteta\intileftinteta\initileftinteta\intileftinteta\intileftinteta\initileftinteta\initileftinteta\intileftinteta\initileftinteta\initileftinteta\initileftinteta\initileftinteta\initileftinteta\initileftinteta\initileftinteta\initileftinteta\initileftinteta\initileftinteta\initileftinteta\initileftileftileftileftileftileftileftile	Reactivity (CN, S)	Antimony	☐ BTEX
——————————————————————————————————————	<b>=</b>	Arsenic	
Diss Oxygen	YOX	88	
∐ Fleid	<u>⊣</u> ∞	Banum	MDNR Scan 1
(ab	Chloride	Beryllium	MDNR Scan 2
рн	Cyanide	Cadmium	MDNR Scan 3
Field	Fluonde	Calcium	MDNR Scan 4
ا معا	Hydrocarbons-IR	Chromium	MONR Scan 5
Temperature	MBAS	Coball	MDNR Scan 6
Field	N-Ammonia	Copper	MDNR Scan 7
∏ Lab	N-Kjeldani		MONR Scan B
П _{өн}	N-Organic		=
			X VOC'S - TCL (BENZENE AND VINYL CHLORIDE)
Field	N-Nitrate-Nitrite	Magnesium Magnesium	TCLP
Lab	N-Marile	Manganese Manganese	TCLP-AII
T/S Dry Solids	Oil & Grease	Mercury	Metals-Michigan (10)
☐ tvs	Phenois	Molybdenum	Metals (8)
TSS	Phosphorus	Nickel	Volatiles
☐ vss	Selica	Potassium	Semivolatiles
Tros	Suffate	Selenium	Herbiodes/Pesbades
Accepty	Suffide	Silver	Matrix Spike
Alkalinity, Total	Turbidity	Sodium	ADDITIONAL
Alkalinity, as CeCO ₂		Thallrum	X 1.2-DIBROMO-3-CHLOROPROPA
=	Priority Pollutants-All		
Alkalinity, as HCO ₃	<u> </u>	88	H
∐ 800-5	Votatile Organics	Titanium	님
<u></u> ™	Base/Neutral Extractables	Vanadium	¥
Total Hardness	Acid Extractable (Phenois)	∐ ∐ Zinc	<u> </u>
	Inorganics (13 Metals + Cyanide)	"T - Total Metals	LI
	Pestiodes and PC8's	*D - Dissolved Metals	
Ship UPS	Client Pick-up	Site Delivery/Pick-up	X Our Sampling
Sample Containers Provided By.	Test America, Inc	SAMPLERS	
Submitted by:	Received by:	Boyd Date 10 130	/99

#### Hull and Associates, Inc. 3401 Glendale Ave. Suite 300 Toledo, Ohio 43614 (419) 385-5487 (fax)

*Please reference on all analytical reports

REQUEST FOR ANALYSIS

Sheet	1	of	1	

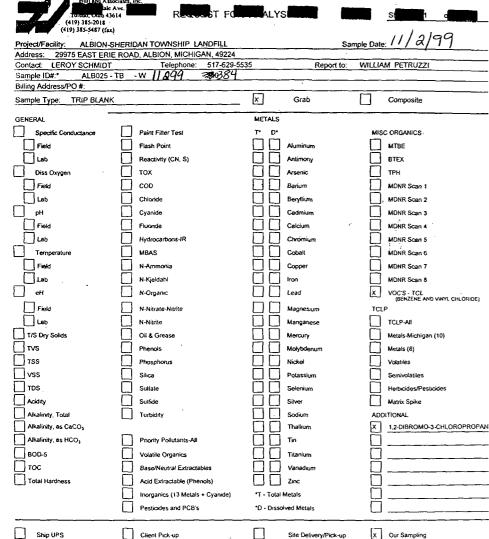
Project/Facility: ALBION-SH	HERIDAN TOWNSHIP LANDFILL	Sar	mple Date: 11/2/99
	ROAD, ALBION, MICHIGAN, 49224	<del> </del>	
Contact: LEROY SCHMIDT	Telephone: 517-629-55:	35 Report to:	WILLIAM PETRUZZI
Sample ID#:* ALB025 - Billing Address/PO #:	KWO10-G 118442 340 384	<del></del>	
Sample Type: DRINKING WA	ATER	X Grab	Composite
GENERAL		METALS	<del> </del>
X Specific Conductance	Paint Filter Test	T* D*	MISC ORGANICS
X Field	Flash Point	Auminum	мтве
Lab	Reactivity (CN, S)	X Antimony	BTEX
X Diss Oxygen	Тох	X Arsenic	ТРН
X Field	COD	Barium	MONR Scan 1
Lab	Chloride	Beryllium	MDNR Scan 2
х рн	Cyanide	Cadmium	MDNR Scan 3
X Field	Fluoride	Calcium	MDNR Scan 4
Lab	Hydrocarbons-IR	Chromium	MDNR Scan 5
X Temperature	MBAS	X Cobalt	MDNR Scan 6
X Field	X N-Ammonia	Copper	MDNR Scan 7
Lab	N-Kjeldahl	[ ] Iron	MONR Scan 8
х ен	N-Organic	Lead	VOC'S - TCL (BENZENE AND VINYL CHLORIDE)
X Field	N-Nitrate-Nitme	Magnesium	TCLP
Lab	N-Nitrite	X Manganese	TCLP-All
T/S Dry Solids	Oil & Grease	Mercury	Metals-Michigan (10)
∏rvs	Phenois	Molybdenum	Metals (8)
Tss	Phosphorus	X Nickel	Volatiles
∏vss	Salica	Potassium	Semivolatiles
X TOS	Sulfale	Selenium	Herbicides/Pesticides
Acidity	Sulfide	Silver	Matrix Spike
Alkalinity, Total	Turbidity	Sodium	ADDITIONAL
Alkalinity, as CaCO ₃		Thallium	X 1,2-DIBROMO-3-CHLOROPROPANE
Alkalinity, as HCO3	Pnonty Pollutants-All	Tin	n
□ BOD-5	Volatile Organics	Titanrum	
∏ 10c	Base/Neutral Extractables	Vanadium	n
Total Hardness	Acid Extractable (Phenols)	□ □ zinc	ī —————
	Inorganics (13 Metals + Cyanide)	*T - Total Metals	n
	Pesticides and PCB's	*D - Dissolved Metals	
Ship UPS	Chent Pick-up	Site Delivery/Pick-up	X Our Sampling
Notes pHSU= 7.44			
Specific Conductance u horns:	= N <del>1</del>		
Temp. oC=   Ø   / Dissolved Oxygen mg/L=	,82 mg/L		
eH mvoHs= ~   \ MV	, · · · · · · · · · · · · · · · · · · ·	<del> </del>	
Sample Containers Provided By	Test America, Inc.	SAMPLERS.	
Submitted by P. Muis	Received by:	Zail Dale //	13199

Phill and Associates, Inc. 3401 Glendale Ave. Suite 300 Toledo, Chio 43614 (419) 385-2018 (419) 385-5447 (Cax)

#### REQUEST FOR ANALYSIS

Sheet	1	of	1

(419) 385-5487 (0	EX)				1 100		
Project/Facility: ALBION-SHERIDAN TOWNSHIP LANDFILL Sample Date: 11/2/99							
Address: 29975 EAST ERIE ROAD, ALBION, MICHIGAN, 49224							
Contact: LEROY SCHMID		Telephone: 517-629-		Report to:	WILLIAM PETRUZZI		
Sample ID#: ALB025	-FB -	w 11219 - 340 3	584				
Billing Address/PO #:							
Sample Type: LAB WATE	R		_ [X]	Grab	Composite		
GENERAL			METALS		<del></del>		
Specific Conductance		Paint Filler Test	ים יד		MISC ORGANICS		
Field	$\overline{\Box}$	Flash Point		Aluminum	MTBE		
∏ (ab	H.	Reactivity (CN, S)	ΠĦ	Antimony	ВТЕХ		
	=	rox	一片筒	Arsenic			
Diss Oxygen	=		불		<b>                                      </b>		
. [_] Field	=	000	무무	Bartum	MONR Scan 1		
Lab	_ <u>   </u> '	Chloride	닐빌	Beryllium	MDNR Scan 2		
Hq	، ليا	Cyanide	ЦЦ	Cadmium .	MDNR Scan 3		
Field	_ [] ·	Fluoride		Calcium	MDNR Scan 4		
Lab	$\Box$	Hydrocarbons-IR		Chromium	MDNR Scan 5		
Temperature	ñ,	MBAS .		Cobalt	MDNR Scan 6		
Field	Ö,	N-Ammonia	ΠĦ	Copper	MDNR Scan 7		
∏ Lab	$\approx$	N-Kjeldahl	88	fron	MDNR Scan 8		
	=	•	HH		=		
	_	N-Organic		Lead	(BENZENE AND VINYL CHLORIDE)		
Field	=	N-Nitrate-Nitrite	닐닏	Magnesium	TCLP		
Lab	_ ∐ '	N-Nitrite	닏씯	Manganese	CLP-All		
T/S Dry Solids	_ []   (	Oil & Grease		Mercury	. Metals-Michigan (10)		
☐ tvs	·	Phenois		Motybdenum	Metals (8)		
TSS	_ [] ·	Phosphorus		Nickel	Votatiles		
□ vss	П.	Silica	$\Box\Box$	Potassium	Semivolatiles		
Σ τοs	Ħ.	Sulfate	- AA	Selenium	Herbloides/Pesticides		
Acidity	=	Sulfide	ቨቨ	Silver	Matrix Spike		
_	=		꿈꿈				
Alkalinity, Total		Turbidity	불	Sodium	ADDITIONAL		
Alkalinity, as CaCO ₃			무무	Thallium	X 1,2-DIBROMO-3-CHLOROPROF		
Alkalinity, as HCO,	닏.	Priority Pollutants-All	닏닏	Tin	닐		
BOO-5	_ ∐	Volatile Organics	니니	Titanium	LI		
] тос		Base/Neutral Extractables		Vanadium			
Total Hardness		Acid Extractable (Phenois)		Zinc	$\sqcap$		
	$\overline{\Box}$	Inorganics (13 Metals + Cyanide)	*T - Total	Metals	<u> </u>		
ñ.	n,	Pesticides and PCB's	*D - Disso	lved Metals	<u> </u>		
<u> </u>							
Ship UPS		Client Pick-up		Site Delivery/Pick-up	X Our Sampling		
Notes:		~ ·	- ي				
		1 2	<del></del>				
		<u>~_</u>	<u> </u>				
					<del></del>		
Sample Containers Provided By	Tast An	nerica, Inc.		SAMPLERS:			
11/200	Man An And is						
Submitted by:	MM	S Received by:	Zaril-	Date: //3/9	9		
*Please reference on all analytics	l reports	ن	,		1		



1.2-DIBROMO-3-CHLOROPROPANE Client Pick-up X Our Sampling Site Delivery/Pick-up Test America, Inc. *Please reference on all analytical reports

## ATTACHMENT B

Laboratory Analytical Data Summary Tables

ATTACHMENT B-1: Laboratory Analytical Data Summary Tables

For the Monitor Wells Screened in the

Shallow Bedrock Unit

ATTACHMENT B-2: Laboratory Analytical Data Summary Tables

For Residential Wells

# **ATTACHMENT B-1**

Laboratory Analytical Data Summary Tables for the Monitor Wells Screened in the Shallow Bedrock Unit

# OPERATION AND MAINTENANCE MONITORING

#### TABLE 1

### MONITOR WELL MW-02SB

PARAMETER	UNITS	10/27/99
QUARTERLY PARAMETERS		
NITROGEN, AMMONIA	mg/L	<0.05
ARSENIC, DISSOLVED	mg/L	<0.005
	,,,	
ANNUAL PARAMETERS	mg/L	-
ALUMINUM, DISSOLVED	mg/L	-
ANTIMONY, DISSOLVED	mg/L	-
COBALT, DISSOLVED	mg/L.	
MANGANESE, DISSOLVED	mg/L	
NICKEL, DISSOLVED	mg/L	-
BENZENE	ug/L	
VINYL CHLORIDE	ug/L	-
1,2-DIBROMO-3-CHLOROPROPANE	ug/L	-
EIVE VEAD BADAMETERS		-
FIVE YEAR PARAMETERS	/1	
BNAs	ug/L	-
PESTICIDES	ug/L	-
PCBs	ug/L	-
CYANIDE	mg/L	-
FIELD PARAMETERS		
рН	S.U.	7.41
CONDUCTIVITY	umhos/cm	1083
TEMPERATURE	°C	10.8
еН	millivts	-18
DISSOLVED OXYGEN	mg/L	0
CUDDI EMENITAL DADAMETEDO		
SUPPLEMENTAL PARAMETERS TOTAL DISSOLVED SOLUDS	c /T	
TOTAL DISSOLVED SOLIDS	mg/L	578

### OPERATION AND MAINTENANCE MONITORING

### TABLE 2

#### MONITOR WELL MW-04SB

PARAMETER	UNITS	10/28/99
QUARTERLY PARAMETERS		
NITROGEN, AMMONIA	mg/L	29
ARSENIC, DISSOLVED	mg/L	0.023
ANNUAL PARAMETERS	mg/L	-
ALUMINUM, DISSOLVED	mg/L	-
ANTIMONY, DISSOLVED	mg/L	· -
COBALT, DISSOLVED	mg/L	-
MANGANESE, DISSOLVED	mg/L	-
NICKEL, DISSOLVED	mg/L	-
BENZENE	ug/L	-
VINYL CHLORIDE	ug/L	-
1,2-DIBROMO-3-CHLOROPROPANE	ug/L	-
FIVE YEAR PARAMETERS		-
BNAs-	ug/L	-
PESTICIDES	ug/L	-
PCBs	ug/L	-
CYANIDE	mg/L	-
FIELD PARAMETERS		
рН	S.U.	7.14
CONDUCTIVITY	umhos/cm	1366
TEMPERATURE	°C	11.8
еН	millivts	-5
DISSOLVED OXYGEN	mg/L	0.87
SUPPLEMENTAL PARAMETERS		
TOTAL DISSOLVED SOLIDS	mg/L	652

## OPERATION AND MAINTENANCE MONITORING

#### TABLE 3

### MONITOR WELL MW-05SB

PARAMETER	UNITS	10/27/99
QUARTERLY PARAMETERS		ı
NITROGEN, AMMONIA	mg/L	0.13
ARSENIC, DISSOLVED	mg/L	<0.005
ANNUAL PARAMETERS	mg/L	-
ALUMINUM, DISSOLVED	mg/L	-
ANTIMONY, DISSOLVED	mg/L	-
COBALT, DISSOLVED	mg/L	
MANGANESE, DISSOLVED	mg/L	
NICKEL, DISSOLVED	mg/L	-
BENZENE	ug/L	
VINYL CHLORIDE	ug/L	-
1,2-DIBROMO-3-CHLOROPROPANE	ug/L	-
		-
FIVE YEAR PARAMETERS		
BNAs	ug/L	-
PESTICIDES	ug/L	-
PCBs	ug/L	-
CYANIDE	mg/L	-
FIELD PARAMETERS		
рН	S.U.	7.45
CONDUCTIVITY	umhos/cm	725
TEMPERATURE	°C	10.7
еН	millivts	-19
DISSOLVED OXYGEN	mg/L	0.67
SUPPLEMENTAL PARAMETERS		
TOTAL DISSOLVED SOLIDS	mg/L	421

### OPERATION AND MAINTENANCE MONITORING

TABLE 4

### MONITOR WELL MW-06SB

PARAMETER	UNITS	10/28/99	10/28/99#
QUARTERLY PARAMETERS			
NITROGEN, AMMONIA	mg/L	26	24
ARSENIC, DISSOLVED	mg/L	0.164	0.164
ANNUAL PARAMETERS	mg/L	-	-
ALUMINUM, DISSOLVED	mg/L	-	-
ANTIMONY, DISSOLVED	mg/L	` -	-
COBALT, DISSOLVED	mg/L	-	_
MANGANESE, DISSOLVED	mg/L		-
NICKEL, DISSOLVED	mg/L	-	-
BENZENE	ug/L	-	-
VINYL CHLORIDE	ug/L	-	-
1,2-DIBROMO-3-CHLOROPROPANE	ug/L	-	-
FIVE YEAR PARAMETERS		-	-
BNAs	ug/L	-	-
PESTICIDES	ug/L	-	-
PCBs	ug/L	-	-
CYANIDE	mg/L	-	-
FIELD PARAMETERS		· .	
рН	S.U.	7.13	7.13
CONDUCTIVITY	umhos/cm	1258	1258
TEMPERATURE	°C	11.6	11.6
eH·	millivts	-4	-4
DISSOLVED OXYGEN	mg/L	0.95	0.95
SUPPLEMENTAL PARAMETERS			
TOTAL DISSOLVED SOLIDS	mg/L	605	612

### OPERATION AND MAINTENANCE MONITORING

#### TABLE 5

#### MONITOR WELL MW-08SB

PARAMETER	UNITS	10/28/99
QUARTERLY PARAMETERS		
NITROGEN, AMMONIA	mg/L	0.52
ARSENIC, DISSOLVED	mg/L	<0.005
ANNUAL PARAMETERS	mg/L	-
ALUMINUM, DISSOLVED	mg/L	-
ANTIMONY, DISSOLVED	mg/L	
COBALT, DISSOLVED	mg/L	-
MANGANESE, DISSOLVED	mg/L	
NICKEL, DISSOLVED	mg/L	-
BENZENE	ug/L	
VINYL CHLORIDE	ug/L	-
1,2-DIBROMO-3-CHLOROPROPANE	ug/L	-
EIVE VEAD DADAMETEDS		-
FIVE YEAR PARAMETERS BNAs	ug/L	
PESTICIDES	ug/L ug/L	
PCBs	ug/L ug/L	_]
CYANIDE	mg/L	
CTAMDE	mg/L	-
FIELD PARAMETERS		
рН	S.U.	7.25
CONDUCTIVITY	umhos/cm	928
TEMPERATURE	°C	11.4
еН	millivts	-10
DISSOLVED OXYGEN	mg/L	0.48
SUPPLEMENTAL PARAMETERS		
TOTAL DISSOLVED SOLIDS	mg/L	558

# OPERATION AND MAINTENANCE MONITORING

#### TABLE 6

### MONITOR WELL MW-09SB

PARAMETER	UNITS	10/28/99
QUARTERLY PARAMETERS		
NITROGEN, AMMONIA	mg/L	13
ARSENIC, DISSOLVED	mg/L	<0.005
ANNUAL PARAMETERS	mg/L	-
ALUMINUM, DISSOLVED	mg/L	-
ANTIMONY, DISSOLVED	mg/L	-
COBALT, DISSOLVED	mg/L	-
MANGANESE, DISSOLVED	mg/L	-
NICKEL, DISSOLVED	mg/L	-
BENZENE	ug/L	
VINYL CHLORIDE	ug/L	-
1,2-DIBROMO-3-CHLOROPROPANE	ug/L	-
FIVE YEAR PARAMETERS		-
BNAs	ug/L	_
PESTICIDES	ug/L	_
PCBs	ug/L	_
CYANIDE	mg/L	-
FIELD PARAMETERS		
рН	S.U.	7.17
CONDUCTIVITY	umhos/cm	1239
TEMPERATURE	°C	11.3
еН	millivts	-6
DISSOLVED OXYGEN	mg/L	0.48
SUPPLEMENTAL PARAMETERS		
TOTAL DISSOLVED SOLIDS	mg/L	656

# **ATTACHMENT B-2**

Laboratory Analytical Data Summary Tables for Residential Wells

## OPERATION AND MAINTENANCE MONITORING

#### TABLE 7

### RESIDENTIAL WELL RW-04

PARAMETER	UNITS	10/28/99
QUARTERLY/ANNUAL PARAMETERS	United to Page 1	10/20/20
NITROGEN, AMMONIA	mg/L	0.23
ARSENIC, DISSOLVED	mg/L	< 0.005
ALUMINUM, DISSOLVED	mg/L	<0.1
ANTIMONY, DISSOLVED	mg/L	<0.005
COBALT, DISSOLVED	mg/L	- <0.01
MANGANESE, DISSOLVED	mg/L	0.082
NICKEL, DISSOLVED	mg/L	<0.05
BENZENE	ug/L	<5
VINYL CHLORIDE	ug/L	<1
1,2-DIBROMO-3-CHLOROPROPANE	ug/L	<1
FIVE YEAR PARAMETERS		
BNAs	ug/L	-
PESTICIDES	ug/L	-
PCBs	ug/L	-
CYANIDE	mg/L	-
FIELD PARAMETERS		
рН	S.U.	7.44
CONDUCTIVITY	umhos/cm	709
TEMPERATURE	°C	12.8
еН	millivts	-21
DISSOLVED OXYGEN	mg/L	6.08

(-) Not Tested

HULL & ASSOCIATES, INC. TOLEDO, OHIO

MARCH 2000 DATA\WELLS\ALB\RW04.XLS

### OPERATION AND MAINTENANCE MONITORING

#### TABLE 8

### **RESIDENTIAL WELL RW-06**

	1. 20.		
PARAMETER		UNITS	11/2/99
QUARTERLY/ANNUAL PARAMETI	ERS		
NITROGEN, AMMONIA		mg/L	<0.05
ARSENIC, DISSOLVED		mg/L	< 0.005
ALUMINUM, DISSOLVED	•	mg/L	. <0.1
ANTIMONY, DISSOLVED	,	mg/L	< 0.005
COBALT, DISSOLVED		mg/L	- <0.01
MANGANESE, DISSOLVED		mg/L	0.036
NICKEL, DISSOLVED	i	mg/L	< 0.05
BENZENE		ug/L	<5
VINYL CHLORIDE		ug/L	<1
1,2-DIBROMO-3-CHLOROPROPANE		ug/L	<1
			· ·
FIVE YEAR PARAMETERS			
BNAs		ug/L	-
PESTICIDES	1	ug/L	-
PCBs		ug/L	-
CYANIDE		mg/L	-
	ļ	-	
FIELD PARAMETERS	·		
рН		S.U.	7.44
CONDUCTIVITY		umhos/cm	(1)
TEMPERATURE		°C	12.7
еН		millivts	-16
DISSOLVED OXYGEN		mg/L	1.82

(-) Not Tested MARCH 2000

(1) Instrument malfunction, no reading available.

DATA\WELLS\ALB\RW06.XLS

HULL & ASSOCIATES, INC. TOLEDO, OHIO

# ATTACHMENT C

Field Data Summary Tables

ATTACHMENT C-1: Ground-water Elevation Summary Table

ATTACHMENT C-2: Gasprobe Monitoring Summary Table

ATTACHMENT C-3: Evaluation of Concentrations and Risk Calculations Table; Vent VOC Concentration

Table

# ATTACHMENT C-1

Ground-water Elevation Data Summary Table

HULL & ASSOCIATES, INC. TOLEDO, OHIO

MARCH 2000 : ALB025.100.00017.DOC

OPERATION AND MAINTENANCE MONITORING

TABLE 9

SUMMARY OF GROUND-WATER ELEVATIONS IN MONITOR WELLS

MONITOR: WELL LD:	10/27/99
UNCONSOLIDATED SATURATED UNIT	
MW01SG	982.36
MW02SG	949.61
MW03SG	946.63
MW04SG(WB)	946.07
MW05SG	948.69
MW06SG	946.92
MW07SG	946.49
MW08SG	955.30
MW09SG	945.69
MW10SG	945.68
MW11SG	
MW12SG	
MW13SG	
DEEP BEDROCK UNIT	
MW04DB	965.24
MW16DB	
SHALLOW BEDROCK UNIT	
MW01SB	
MW02SB	948.99
MW03SBA	946.16
MW04SB(SB2)	946.07
MW05SB	946.95
MW06SB	946.08
MW07SB	946.02
MW08SB	946.10
MW09SB	946.06
MW15SB	
MW16SB	
WEATHERED BEDROCK UNIT	
MW01WB	
MW02WB	949.33
MW03WB	946.08
MW04WB(SB1)	946.07
MW06WB	945.70
MW07WB	946.01
MW08WB	946.14
MW09WB	945.72

Notes: 1) All ground-water elevation data are in ft./USGS.

(-) Not Available

# ATTACHMENT C-2

Gasprobe Monitoring Data Summary Table

HULL & ASSOCIATES, INC. TOLEDO, OHIO

MARCH 2000 ALB025.100.00017.DOC

#### OPERATION AND MAINTENANCE MONITORING

#### TABLE 10

### SUMMARY OF EXPLOSIVE GAS MONITORING IN GAS PROBES

	10/27/99					
GAS PROBE I.D.	% Gas	% Cas		% O ₂	Water Level (ft)	
GP-1	0	0	0	21	DRY	
GP-2	0	0	0	21	DRY	
GP-3	0	0	0	21	DRY	
GP-4	0	0	0	21	DRY	
GP-5	0	0	0	21	DRY	

# **ATTACHMENT C-3**

Evaluation of Concentration and Risk Calculations Table Vent VOC Concentrations Table

#### TABLE 11 ALBION-SHERIDAN TOWNSHIP LANDFILL **EVALUATION OF CONCENTRATION AND RISK CALCULATIONS**

VOC Name (CAS No.)	Pre-Design Model Emission Rate (ug/s) 1	Pre-Design Model Max. Predicted Fenceline Concentration (ug/m³) 2	Sampling Emission Rate (ug/s) 3	Sampling Max. Predicted Fenceline Concentration (ug/m³) 4	MDEQ Screening Level (ug/m³) 5	Unit Risk Factor (ug/m³) ⁻¹ 6	Pre-Design Model 70 Year Risk . 7	Sampling 70 Year Risk 8
Benzene (71-43-2)	468.99	9.38E-05	0.396	6.45E-05	0.1	1.00E-05	9.38E-10	6.45E-10
Carbon Tetrachloride (56-23-5)	19.39	3.87E-06	0.159	2.58E-05	0.04	2.50E-05	9.68E-11	6.45E-10
Chloroform (67-66-3)	7.13	1.43E-06	0.125	2.03E-05	0.4	2.50E-06	3.58E-12	5.07E-11
Ethylene Dichloride (107-06-2)	127.23	2.53E-05	0.102	1 66E-05	0.04	2.50E-05	6.33E-10	4.15E-10
Methylene Chloride (75-09-2)	3802.65	7.63E-04	0.130	2.12E-05	2	5.00E-07	3.82E-10	1.06E-11
Perchloroethene (127-18-4)	1939.35	3.89E-04	0.170	2.76E-05 .	1.7	5.88E-07	2.29E-10	1.63E-11
Trichloroethene (79-01-6)	1162.98	2.33E-04	1.472	2.40E-04	0.6	1.67E-06	3.89E-10	4.00E-10
Vinyl Chloride (75-01-4)	0.05	2.88E-04	1.472	2.40E-04	0.4	2.50E-06	7.20E-10	5.99E-10
1-1 Dichloroethylene (75-35-4)	61.16	1.22E-05	0.102	1.66E-05	0.02	5.00E-05	6.10E-10	8.29E-10
						Total Risk	4.00E-09	3.61E-09

#### Notes:

- (1) Emissions rates calculated using USEPA Landfill Model.
- (2) Concentrations calculated from Pre-Design ISCST3 Model.
- (3) Emissions rates calculated from sampling.
- (4) Concentrations calculated from Gaussian Air Dispersion Model.
- (5) MDEQ Screening Levels.
- (6) Unit Risk factors derived from MDEQ screening levels.
- (7) Per-Design calculated 70 year risk.(8) Calculated 70 year risk from sampling data.

# TABLE 12 ALBION-SHERIDAN TOWNSHIP LANDFILL VENT VOC CONCENTRATIONS

Specific	Vent #1	Vent #2
VOCs	(ug/m ³ )	(ug/m ³ )
Benzene	190	70
Vinyl Chloride	210	260
Trichloroethene	40	260
Methylene Chloride	*19	23
1-1 Dichloroethene	*22	*22
Chloroform	*27	*27
Carbon Tetrachloride	*35	*35
1-2 Cichloroethane	*22	*22
Tetrachloroethene	*38	*38

Note: * The detection limits of the sampling analyses were higher than the MDEQ screening levels.

Therefore, the detection limits of the noted VOCs were assumed to be present in the sample.

# ATTACHMENT D

Site Walk Correspondence



3401 Glendale Avenue Suite 300 Toledo, Ohio 43614 (419) 385-2018 fax: (419) 385-5487

December 16, 1999

Leroy Schmidt City of Albion 112 West Cass Street Albion, Michigan 49224

RE: Final Construction Certification Site Walkover Observations at the Albion-Sheridan Township Landfill Superfund Site ALB025.100.0015

#### Dear Mr. Schmidt:

Hull & Associates, Inc. (HAI) has developed this letter on behalf of the Settling O&M Defendants (City of Albion & Decker Manufacturing, Inc.) to document our observations and concerns regarding the completed closure activities and site conditions made during the November 2, 1999 Final Certification Site-Walkover at the above referenced Site. The following is a summary of our observations or concerns:

#### Surface-Water Management System

There were several areas in the perimeter ditches where it appears that insufficient erosion control (i.e., rip-rap, etc.) were placed in areas of concentrated surface water flow and along portions of the perimeter ditch that made 90 degree bends. While these areas may have been constructed per the design plans, these areas will potentially be a long-term maintenance problem given the granular nature of the vegetative soils.

Specifically, these areas include an area in the northeast portion of the Site where two drainage swales and a discharge pipe from the drainage layer discharge into the eastern ditch that immediately makes a 90-degree bend. This area of concentrated flow represents a long term maintenance problem. In the northwest portion of the Site, where the perimeter ditch discharges into the northern sedimentation basin, there is no rip-rap or other erosion control mechanism. This area will also be a long term maintenance problem. In the southwest portion, the southern perimeter ditch and the rock letdown structure to the western sedimentation basin do not line-up along the same flow line. Therefore, surface water discharge from the ditch will not enter the letdown structure. This condition will likely create extensive erosion along the western perimeter slope.

## **Cap Erosion Issues**

Due to the lack of established vegetative cover, several erosion issues are developing. Erosion rills are present at the top of the slope on the east side of the landfill under the perimeter fence; around the southwest area on the slopes and the letdown discharging into the southwest infiltration basin; and between the southwest infiltration basin and the perimeter fence.

Leroy Schmidt ALB025.100.0015 December 16, 1999 Page 2

#### **Northwest Berm Construction**

The outer slope of the northwest berm of the landfill appears to be at a slope of greater than the 1:1 and was noted to show signs (i.e., tensile crack) of movement at the top of the slope. It is HAIs opinion that this slope will continue to fail given the current slope (>1:1), the nature of the granular material used in construction, and the lack of vegetation.

## Monitoring Well Repairs/ Protective Casing

Several protective casing and monitoring well stick-up elevations were noted to be less than 2.0' above grade. This condition will make it difficult to find these wells when snow is present and to see when mowing activities are completed at the Site. In addition, it was noted that monitoring well cluster #3, located in northwest portion of the Site, was located in a depression that would collect surface water. Also, observations regarding the condition of several monitor wells at the facility were noted in a letter to you dated September 7, 1999 (HAI Document #ALB025.100.0007). A more thorough inspection of the monitor well system was completed by HAI on October 27, 1999 during the first sampling event. These inspections document that there are several monitor well repairs that should be completed to ensure the integrity of the network.

#### Perimeter Fence

The perimeter fence installation was found to be unsatisfactory at several locations. Specifically, the vertical distance from the ground surface to the bottom of the fence was in some areas greater than two feet. In addition, the barbed wire top section of the perimeter fence was not completed along the southern and western portion of the Site.

### Vegetation

The cap and associated areas were hydro-seeded. This seeding was completed in mid-October and at the time of the site walkover only a very small percentage had germinated.

#### **Existing Site Conditions**

During construction activities, a vertical excavation was performed on a mound located at the northwest area of the landfill. The vertical face showed evidence of slumping which, if it continues, will cause the existing tree to fall, potentially affecting the integrity of the cap. Also, this slope needs to be regraded to minimize additional slope failures.

Debris piles consisting of trees and brush are present along the western edge of the landfill. These piles need to be handled and disposed of properly.

Leroy Schmidt ALB025.100.0015 December 16, 1999 Page 3

Please feel free to contact me at your convenience, should you have any questions or comments regarding the above information.

Sincerely,

William G. Petruzzi, P.G. Senior Project Manager

WGP/pkd

ct: Bernard Konkle, Decker Manufacturing Corp.

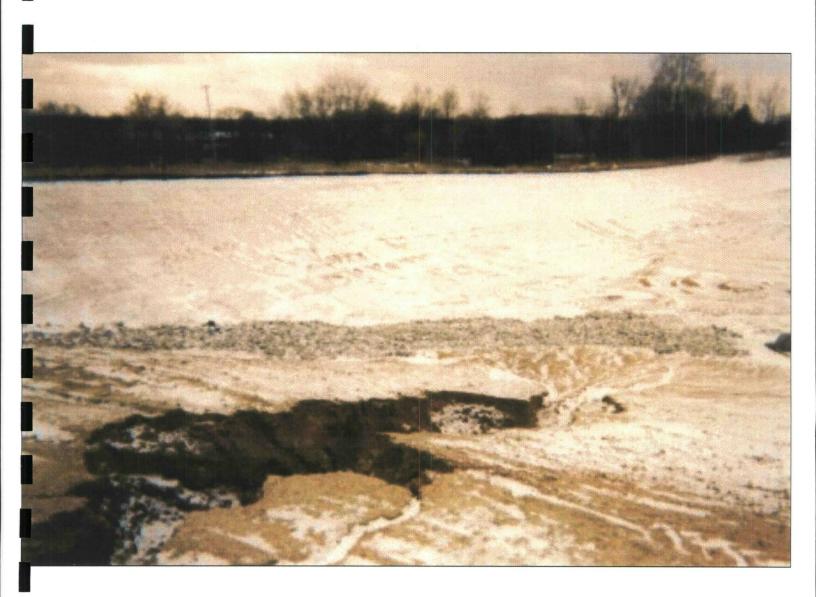
Terry Baehr, Hull & Associates, Inc.

# ATTACHMENT E

Photo-Documentation

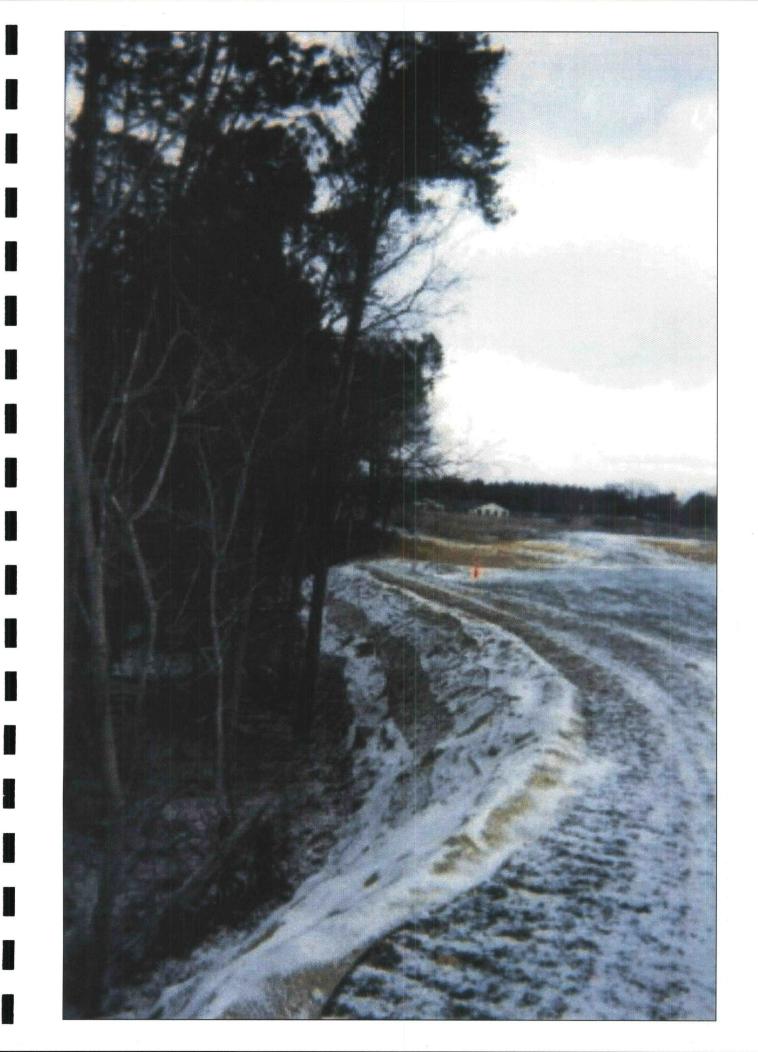
HULL & ASSOCIATES, INC. TOLEDO, OHIO

MARCH 2000 ALB025.100.00017.DOC

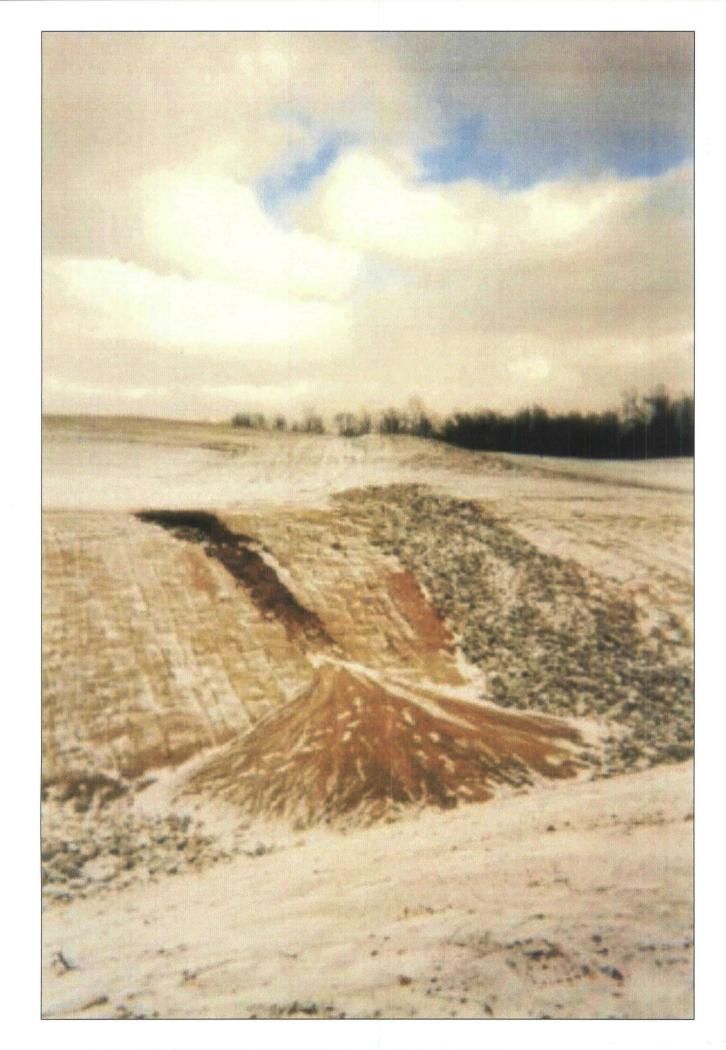


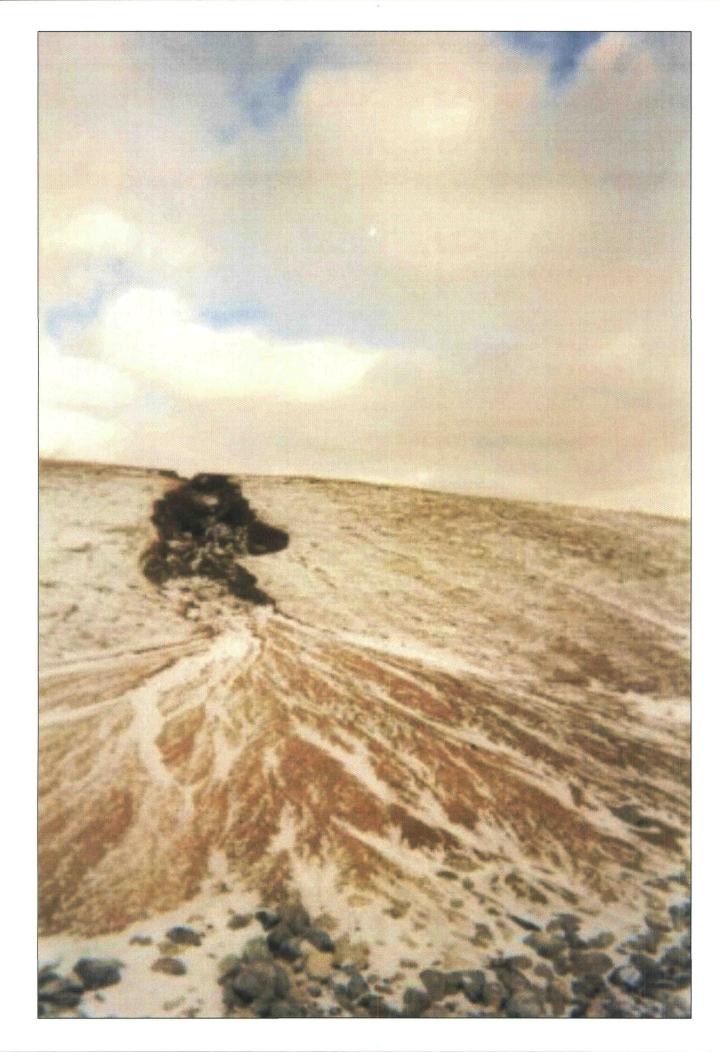
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